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Muscle shoals propositions.

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U. S. - Congress - House - Military Affairs, Committee on

MUSCLE SHOALS PROPOSITIONS

HEARINGS

BEFORE THE

COMMITTEE ON MILITARY AFFAIRS
HOUSE OF REPRESENTATIVES

SIXTY-EIGHTH CONGRESS

FIRST SESSION

JANUARY 15, 17, 22, 23, 25, 26, 28, AND 29, 1924

WITH

APPENDIX

CONTAINING

HEARINGS IN EXECUTIVE SESSION

SIXTY-SEVENTH CONGRESS

MONDAY, APRIL 10, 1922, TO
MONDAY, JUNE 19, 1922

SUPPLEMENTARY TO VOLUME ONE

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COMMITTEE ON MILITARY AFFAIRS.

House of Representatives.

SIXTY-EIGHTH CONGRESS.

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MUSCLE SHOALS PROPOSITIONS.

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Tuesday, January 15, 1924.

The committee met at 10.30 o'clock a. m., Hon. Julius Kahn (chairman) residing.

The CHAIRMAN. Gentlemen, the committee has met this morning for the purpose of taking up the consideration of three bills which have been introduced in the House with regard to Muscle Shoals, which I will have incorporated in the record at this point.

(The bills referred to are as follows:)

[H. R. 518, Sixty-eighth Congress, first session.]

A BILL To authorize and direct the Secretary of War to sell to Henry Ford nitrate plant numbered 1, at Sheffield, Alabama; nitrate plant numbered 2, at Muscle Shoals, Alabama; Waco Quarry, near Russellville, Alabama; and to lease to the corporation to be incorporated by him Dam Numbered 2 and Dam Numbered 3 (as designated in House Document 1262 Sixty-fourth Congress, first session), including power stations when constructed as provided herein, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of War is hereby authorized and directed, for and in behalf of the United States of America, to execute the following contracts:

For the purpose of carrying out the terms of this agreement, Henry Ford will form a corporation (hereinafter referred to as the company) with a capital stock of $10,000,000, or more, of which at least $10,000,000 shall be paid in, in cash, to be controlled by Henry Ford, which company will immediately enter into and execute all necessary or appropriate instruments of contract to effectuate this agreement.

SEC. 2. The company shall complete for the United States, subject to the approval of the Chief of Engineers, United States Army, Dam Numbered 2, its locks, power house, and all necessary equipment, all in accordance with the plans and specifications prepared, or to be prepared, or approved by the Chief of Engineers, United States Army, and progressively install the hydroelectric equipment in said power house adequate for generating approximately six hundred thousand horsepower, all the work aforesaid to be performed as speedily as possible at actual cost and without profit to the company. It is understood that the necesary lands and flowage rights, including lands for railway and terminal connections, have been or will be acquired by the United States.

SEC. 3. The company will lease from the United States Dam Numbered 2, its power house, and all of its hydroelectric and operating appurtenances, except the locks, together with all lands and buildings owned or to be acquired by the United States connected with or adjacent to either end of the said dam, for a period of one hundred years from the date when structures and equipment of a capacity of one hundred thousand horsepower are constructed and installed and ready for service, and will pay to the United States as annual rental therefor 4 per centum of the actual cost of acquiring land and flowage rights, and of completing the locks, dam, and power-house facilities (but not including expenditures and obligations incurred prior to approval of this proposal by Congress), payable annually at the end of each lease year, except that during and for the first six years of the lease period the rentals shall be in the following amounts and payable at the following times, to wit: Two hundred thousand dollars one year from the date when one hundred thousand horsepower is installed and ready for service, and thereafter $200,000 annually at the end of each year for five years.

SEC. 4. The company will further pay to the United States during the period of the lease of Dam Numbered 2 $35,000 annually, in installments quarterly in advance, for repairs, maintenance, and operation of Dam Numbered 2, its gates and locks; it being understood that all necessary repairs, maintenance, and operation thereof shall be under the direction, care, and responsibility of the United States during the said one hundred year lease period; and the company, at its own expense, will make all necessary renewals and repairs incident to efficient

maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house, and will maintain the same in efficient operating condition.

SEC. 5. At all times during the period of the lease of Dam Numbered 2 the company will furnish to the United States free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, United States Army, electric power to an amount necessary for the operation of the locks, but not in excess of two hundred horsepower.

SEC. 6. As soon as the release of suitable construction equipment and labor forces at Dam Numbered 2 will permit, or at an earlier date if desired by the company, the company shall construct and complete, subject to the approval of the Chief of Engineers, United States Army, for the United States, Dam Numbered 3, its lock, power house, and all necessary equipment, all in accordance with plans and specifications prepared and to be prepared by the Chief of Engineers, United States Army, or by the company, at its option, and approved by the Chief of Engineers, United States Army, and progressively install the hydroelectric equipment in said power house adequate for generating approximately two hundred and fifty thousand horsepower, all the work aforesaid to be performed as speedily as possible at actual cost and without profit to the company, it being understood that the necessary lands, flowage rights, and rights of way shall be acquired by the United States through an agent to be named by the company.

SEC. 7. The company will lease from the United States Dam Numbered 3, its power house, and all of its hydroelectric and operating appurtenances, except the lock, together with all lands and buildings owned or to be acquired by the United States connected with or adjacent to either end of the said dam, for a period equal to the lease term of Dam Numbered 2 and its hydroelectric power equipment thereat as stated in paragraph 3 hereof, in order that said respective lease terms of the two dams and the hydroelectric equipment thereat shall expire at the same time, the said period to begin from the date when structures and equipment of a capacity of eighty thousand horsepower are constructed and installed and ready for service, and will pay to the United States as annual rental therefor, 4 per centum of the actual cost of acquiring lands and flowage rights, and of constructing the lock, dam, and power-house facilities, payable annually at the end of each lease year, except that during and for the first three years of the lease period the rentals shall be in the following amounts and payable at the following times, to wit: One hundred and sixty thousand dollars one year from the date when eighty thousand horsepower is installed and ready for service, and thereafter $160,000 annually at the end of each year for two years. Dams Numbered 2 and 3 shall be included in the lease.

SEC. 8. The company will further pay to the United States during the period of the lease of Dam Numbered 3 $20,000 annually, in installments, quarterly in advance, for repairs, maintenance, and operation of Dam Numbered 3, its gates and lock; it being understood that all necessary repairs, maintenance, and operation thereof shall be under the direction, care, and responsibility of the United States during the said one hundred year period; and the company, at its own expense, will make all necessary renewals and repairs incident to the efficient maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house and will maintain the same in efficient operating condition.

SEC. 9. At all times during the period of the lease of Dam Numbered 3 the company will furnish to the United States, free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, United States Army, electric power necessary for the operation of the said lock, but not in excess of one hundred horsepower.

SEC. 10. For the purpose of enabling the Government to create and provide a sinking fund to retire the cost of Dam Numbered 3 at the end of the lease period, the company will, at the beginning of the fourth year of the lease period, and semiannually thereafter for the remaining term of the lease, pay to the United States Government the sum of $3,505; and for the purpose of enabling the Government to create and provide a sinking fund to retire the cost of Dam Numbered 2 at the end of one hundred years, the company will at the beginning of the seventh year of the lease period, and semiannually thereafter for the remaining term of the lease, pay to the United States Government the sum of $19,868.

SEC. 11. The company agrees to purchase from the United States, and the United States will sell the following properties, namely:

(a) All of the property constituting nitrate plant numbered 2 (as officially known and designated), including lands, power plants, buildings, material,

machinery, fixtures, equipment, apparatus, appurtenances, tools and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred or assigned to a purchaser of nitrate plant numbered 2 by the United States, together with the sulphuric acid units now in storage on the premises.

(b) All of the property constituting nitrate plant numbered 1 (as officially known and designated), including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools, and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferrred to a purchaser of nitrate plant numbered 1 by the United States, but the company shall not be obliged to operate nitrate plant numbered 1 as an air nitrogen fixation plant.

(c) All of the property constituting the Waco Quarry (as officially known and designated), including rights of way and buildings, material, quarry tracks, machinery, railroad tracks, appurtenances, tools, and supplies.

SEC. 12. As the purchase price for the foregoing plants and properties to be conveyed to the company by the United States, the company will pay to the United States $5,000,000 in five installments as follows: One million dollars upon the acceptance of this offer, and $1,000,000 annually thereafter until the purchase price is fully paid, with interest at the rate of 5 per centum per annum on deferred payments, with the privilege of anticipating any or all such payments, possession to be delivered upon payment of the first of said installments, and deeds of conveyance to be delivered when full payment for said property has been made. Each of said deeds shall refer to or contain the provisions of this offer and said deeds shall be so drawn as to make such provisions covenants running with the land.

SEC. 13. This proposal contemplates and it is agreed that the purchase price for the property aforesaid shall not be diminished by reason of depreciation due to use or wear of buildings, machinery, and equipment or to the action of the elements, nor shall any claim be made for losses in or diminution of quantity of tools and supplies due to upkeep and maintenance during the period between the date hereof and the date of delivery of possession of said property; it being further understood that no inventory of the property need be taken, but that due care will be exercised by the United States in preserving and safeguarding the aforesaid real and personal property intact until possession thereof passes to the company. If any part or parts of the aforesaid plants necessary for proper operation of same have been removed by the United States, said part or parts shall be returned when possession of said plants passes to the company. Deeds of conveyance of real property shall warrant the title to be good and unencumbered, but in accordance with and subject to the provisions set forth in paragraph 12 hereof.

SEC. 14. Since the manufacture, sale, and distribution of commercial fertilizers to farmers and other users thereof constitute one of the principal considerations of this offer, the company expressly agrees that, continuously throughout the lease period, except as it may be prevented by reconstruction of the plant itself, or by war, strikes, accidents, fires, or other causes beyond its control, it will manufacture nitrogen and other comercial fertilizers, mixed or unmixed, and with or without filler, according to demand, at nitrate plant numbered 2 or its equivalent, or at such other plant or plants adjacent or near thereto as it may construct, using the most economical source of power available. The annual production of these fertilizers shall have a nitrogen content of at least forty thousand tons of fixed nitrogen, which is the present annual capacity of nitrate plant numbered 2. If during the lease period said nitrate plant numbered 2 is destroyed or damaged from any cause, the company agrees to restore such plant, within a reasonable time, to its former capacity and further agrees:

(a) To determine by research whether by means of electric-furnace methods and industrial chemistry there may be produced on a commercial scale fertilizer compounds of higher grade and at lower prices than farmers and other users of commercial fertilizers have in the past been able to obtain, and to determine whether in a broad way the application of electricity and industrial chemistry may accomplish for the agricultural industry of the country what they have economically accomplished for other industries, and if so found and determined, to reasonably employ such improved methods.

(b) To maintain nitrate plant numbered 2 in its present state of readiness or its equivalent for immediate operation in the manufacture of materials necessary in time of war for the production of explosives.

SEC. 15. In order that farmers and other users of fertilizers may be supplied with fertilizers at fair prices and without excessive profits, the company agrees that the maximum net profit which it shall make in the manufacture and sale of fertilizer products shall not exceed 8 per centum of the fair actual annual cost of production thereof. In order that this provision may be carried out, the company agrees to the creation of a board of not more than nine voting members, chosen as follows: The three leading representative farm organizations, national in fact, namely, the American Farm Bureau Federation, the National Grange, the Farmers' Educational and Cooperative Union of America, or their successor or successors (said successor or successors to be determined, in case of controversy, by the Secretary of Agriculture), shall each designate not more than seven candidates for said board in the first instance and thereafter, for succession in office, not more than three candidates. The President shall nominate for membership on this board not more than seven of these candidates, selected to give representation to each of the above-mentioned organizations, said nominations to be made subject to confirmation by the Senate, and there shall be two voting members of said board selected by the company: *Provided*, That not more than one shall be nominated by the President from the same State; that if the Senate shall not confirm all of said seven nominees the President shall send additional names from the said list of candidates until the Senate shall have confirmed seven: *Provided further*, That if either or any of said farm organizations or its or their successors by reason of the expiration of its or their charter or ceasing to function or failing to maintain its organization or for any cause or reason should decline, fail, or neglect to make such designations, then the Secretary of Agriculture shall make such designation or designations for such or all of said organizations as may so decline, fail, or neglect to make such designation; and if such designation is made by the Secretary of Agriculture for only one or two of said organizations, then such designation shall be made so as to give the remaining organization or organizations the same right and in the same proportion to designate candidates for said board as in the first instance and just as though all of said organizations were making such designations: *Provided, however*, That a failure to make designations at any one time shall not thereafter deprive any organization of its original rights under this section: *And provided further*, That the terms of office of the first seven candidates nominated by the President and confirmed by the Senate on the designation of said farm organizations shall be as follows: Two for a period of two years, two for a period of four years, and the remaining three for a period of six years, and thereafter the nominations for membership on said board made by the President, except for unexpired terms, shall be for six years each. None of the members of said board shall draw compensation from the Government, except that any which may be nominated and confirmed on the designation of the Secretary of Agriculture under the provisions hereof shall receive from the Government their actual expenses while engaged in work on said board.

A representative of the Bureau of Markets, Department of Agriculture, or its legal successor, to be appointed by the President, shall also be a member of the board serving in an advisory capacity without the right to vote The said board shall determine what has been the cost of manufacture and sale of fertilizer products and the price which has been charged therefor, and, if necessary for the purpose of limiting the annual profit to 8 per centum, as aforesaid, shall regulate the price at which said fertilizer may be sold by the company. For these purposes, said board shall have access to the books and records of the company at any reasonable time. In order that such fertilizer products may be fairly distributed and economically purchased by farmers and other users thereof, the said board shall determine the equitable territorial distribution of the same and may, in its discretion, make reasonable regulation for the sale of all or a portion of such products by the company to farmers, their agencies or organizations. If and when said board can not agree upon its findings and determinations, then the points of disagreement shall be referred to the Federal Trade Commission (or its legal successor) for arbitration and settlement, and the decision of said commission in such cases shall be final and binding upon the board.

SEC. 16. Whenever in the national defense the United States shall require all or any part of the operating facilities at nitrate plant numbered 2 for the production of materials necessary in the manufacture of explosives or other war materials, then the United States shall have the immediate right, upon five days' notice to the company, to take over and operate the same, and the company will supply the United States with hydroelectric power necessary for such operations, together with the use of all patented processes which the United

States may need which the company owns or has the right to use When required for national defense, any of the company's personnel and operating organization necessary for operating any part of nitrate plant numbered 2 in the manufacture of materials for explosives, or other war materials, shall be at the disposal of the United States. For the facilities and services aforesaid the United States shall protect the company from losses occasioned by such use and shall return the said property in as good condition as when received and reasonably compensate the company for the use thereof. All duly authorized agents and representatives of the United States shall have free access at all reasonable times to inspect and study all of the operations, chemical processes, and methods employed by the company at nitrate plant numbered 2, provided that such agents and representatives shall not use the information and the facts concerning any of the company's operations, except for the benefit and protection of the United States.

SEC. 17. In order that said company may be supplied with electric power and the farmers and other users with fertilizers after the termination of the said one-hundred-year leases, should the United States elect not to operate said power plants but determine to lease or dispose of same, the company shall have the preferred right to negotiate with the United States for such lease or purchase, and upon such terms as may then be prescribed by Congress.

SEC. 18. In addition to any other remedies that may be possessed by the United States, and as a further method of procedure in the event of the violation of any of the terms of this proposal or any contracts made in furtherance of its terms, the company agrees that the Attorney General may, upon the request of the Secretary of War, institute proceedings in equity in the District Court of the United States for the Northern District of Alabama for the purpose of canceling and terminating the lease of Dam Numbered 2 or Dam Numbered 3, or both of them, because of such violation or for the purpose of remedying or correcting by injunction, mandamus, or other process any act of commission or omission in violation of the terms of this proposal or any contract made in furtherance thereof.

SEC. 19. The Secretary of War is hereby authorized and directed to execute and deliver all necessary deeds of conveyance, and to execute on the part of the Government all leases required to carry out the provisions of this act.

SEC. 20. The appropriations necessary to carry out the provisions of this act on the part of the Government are hereby authorized.

SEC. 21. That all laws and parts of laws in conflict herewith be, and the same are hereby, repealed.

[H. R. 8, Sixty-eighth Congress, first session.]

A BILL To authorize and direct the Secretary of War, for national defense in time of war and for the production of fertilizers and other useful products in time of peace, to sell to Henry Ford, or a corporation to be incorporated by him, nitrate plant numbered 1, at Sheffield, Alabama; nitrate plant numbered 2, at Muscle Shoals, Alabama; Waco Quarry, near Russellville, Alabama; steam power plant to be located and constructed at or near Lock and Dam Numbered 17 on the Black Warrior River, Alabama, with right of way and transmission line to nitrate plant numbered 2, Muscle Shoals, Alabama; and to lease to Henry Ford, or a corporation to be incorporated dy him, Dam Numbered 2 and Dam Numbered 3 (as designated in House Document 1262, Sixty-fourth Congress, first session), including power stations when constructed as provided herein, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to accept the proposal of Henry Ford dated the 31st day of May, 1922, the Secretary of War is hereby authorized and directed, for and in behalf of the United States of America, to execute any and all proper assignments, contracts, leases, deeds, transfers, and conveyances necessary to effectuate the acceptance of said offer, except such parts of said offer as relate to the Gorgas plant and transmission line (as found in section 12 and in subsection (d) of section 11 of the proposal of Henry Ford dated May 31, 1922), as follows:

SECTION 1. For the purpose of carrying out the terms of this agreement, Henry Ford will form a corporation (hereinafter referred to as the company) with a capital stock of $10,000,000, or more, of which at least $10,000,000 shall be paid in in cash, to be controlled by Henry Ford, which company will immediately enter into and execute all necessary or appropriate instruments of contract to effectuate this agreement.

SEC. 2. The company shall complete for the United States, subject to the approval of the Chief of Engineers, United States Army, Dam Numbered 2, its locks, power house, and all necessary equipment, all in accordance with the plans and specifications prepared, or to be prepared or approved by the Chief

of Engineers, United States Army, and progressively install the hydroelectric equipment in said power house adequate for generating approximately six hundred thousand horsepower, all the work aforesaid to be performed as speedily as possible at actual cost and without profit to the company. It is understood that the necessary lands and flowage rights, including lands for railway and terminal connections, have been or will be acquired by the United States.

SEC. 3. The company will lease from the United States Dam Numbered 2, its power house, and all of its hydroelectric and operating appurtenances, except the locks, together with all lands and buildings owned or to be acquired by the United States connected with or adjacent to either end of the said dam, for a period of one hundred years from the date when structures and equipment of a capacity of one hundred thousand horsepower are constructed and installed and ready for service, and will pay to the United States as annual rental therefor, four per centum of the actual cost of acquiring land and flowage rights, and of completing the locks, dam, and power-house facilities (but not including expenditures and obligations incurred prior to approval of this proposal by Congress), payable annually at the end of each lease year, except that during and for the first six years of the lease period, the rentals shall be in the following amounts and payable at the following times, to wit: Two hundred thousand dollars one year from date when one hundred thousand horsepower is installed and ready for service, and thereafter $200,000 annually at the end of each year for five years.

SEC. 4. The company will further pay to the United States during the period of the lease of Dam Numbered 2 thirty-five thousand dollars annually, in installments quarterly in advance, for repairs, maintenance, and operation of Dam Numbered 2, its gates and locks; it being understood that all necessary repairs, maintenance, and operation thereof shall be under the direction, care, and responsibility of the United States during the said one hundred year lease period; and the company, at its own expense, will make all necessary renewals and repairs incident to efficient maintenance of the power house, substructures, superstructures, machinery and appliances appurtenant to said power house, and will maintain the same in efficient operating condition.

SEC. 5. At all times during the period of the lease of Dam Numbered 2 the company will furnish to the United States free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, United States Army, electric power to an amount necessary for the operation of the locks, but not in excess of two hundred horsepower.

SEC. 6. As soon as the release of suitable construction equipment and labor forces of Dam Numbered 2 will permit, or at an earlier date if desired by the company, the company shall construct and complete, subject to the approval of the Chief of Engineers, United States Army, for the United States, Dam Numbered 3, its lock, power house, and all necessary equipment, all in accordance with plans and speciqcations prepared and to be prepared by the Chief of Engineers, United States Army, or by the company, at its option, and approved by the Chief of Engineers, United States Army, and progressively install the hydroelectric equipment in said power house adequate for generating approximately two hundred and fifty thousand horsepower, all the work aforesaid to be performed as speedily as possible at actual cost and without profit to the company, it being understood that the necessary lands, flowage rights, and rights of way shall be acquired by the United States through an agent to be named by the company.

SEC. 7. The company will lease from the United States Dam Numbered 3, its power house, and all of its hydroelectric and operating appurtenances, except the lock, together with all lands and buildings owned or to be acquired by the United States connected with or adjacent to either end of the said dam, for a period equal to the lease term of Dam Numbered 2 and its hydroelectric power equipment thereat as stated in paragraph 3 hereof, in order that said respective lease terms of the two dams and the hydroelectric equipment thereat shall expire at the same time, the said period to begin from the date when structures and equipment of a capacity of eighty thousand horsepower are constructed and installed and ready for service, and will pay to the United States as annual rental therefor 4 per centum of the actual cost of acquiring lands and flowage rights, and of constructing the lock, dam, and power-house facilities, payable annually at the end of each lease year, except that during and for the first three years of the lease period the rentals shall be in the following amounts and payable at the following times, to wit: One hundred and sixty thousand dollars one year from the date when eighty thousand horsepower is installed and ready for service,

and thereafter $160,000 annually at the end of each year for two years. Dams Numbered 2 and Numbered 3 shall be included in one lease.

SEC. 8. The company will further pay to the United States during the period of the lease of Dam Numbered 3 $20,000 annually, in installments, quarterly in advance, for repairs, maintenance, and operation of Dam Numbered 3, its gates and lock; it being understood that all necessary repairs, maintenance, and operation thereof shall be under the direction, care, and responsibility of the United States during the said one hundred year period; and the company, at its own expense, will make all necessary renewals and repairs incident to the efficient maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house and will maintain the same in efficient operating condition.

SEC. 9. At all times during the period of the lease of Dam Numbered 3 the company will furnish to the United States, free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, United States Army, electric power necessary for the operation of the said lock, but not in excess of one hundred horsepower.

SEC. 10. For the purpose of enabling the Government to create and provide a sinking fund to retire the cost of Dam Numbered 3 at the end of the lease period, the company will, at the beginning of the fourth year of the lease period, and semiannually thereafter for the remaining term of the lease, pay to the United States Government the sum of $3,505; and for the purpose of enabling the Government to create and provide a sinking fund to retire the cost of Dam Numbered 2 at the end of one hundred years, the company will at the beginning of the seventh year of the lease period, and semiannually thereafter for the remaining term of the lease, pay to the United States Government the sum of $19,868.

SEC. 11. The company agrees to purchase from the United States and the United States will sell the following properties, namely:

(a) All of the property constituting nitrate plant numbered 2 (as officially known and designated), including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools, and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred or assigned to a purchaser of nitrate plant numbered 2 by the United States, together with the sulphuric acid units now in storage on the premises.

(b) All of the property constituting nitrate plant numbered 1 (as officially known and designated), including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred to a purchaser of nitrate plant numbered 1 by the United States, but the company shall not be obligated to operate nitrate plant numbered 1 as an air nitrogen fixation plant.

(c) All of the property constituting the Waco quarry (as officially known and designated), including rights of way and buildings, material, quarry tracks, machinery, railroad tracks, appurtenances, tools, and supplies.

SEC. 12. As the purchase price for the foregoing plants and properties to be conveyed to the company by the United States, the company will pay to the United States $5,000,000 in five installments as follows: One million dollars upon the acceptance of this offer, and $1,000,000 annually thereafter until the purchase price is fully paid, with interest at the rate of 5 per centum per annum on deferred payments, with the privilege of anticipating any or all such payments, possession to be delivered upon payment of the first of said installments, and deeds of conveyance to be delivered when full payment for said property has been made. Each of said deeds shall refer to or contain the provisions of this offer and said deeds shall be so drawn as to make such provisions covenants running with the land.

SEC. 13. This proposal contemplates and it is agreed that the purchase price for the property aforesaid shall not be diminished by reason of depreciation due to use or wear of buildings, machinery, and equipment or to the action of the elements, nor shall any claim be made for losses in or diminution of quantity of tools and supplies due to upkeep and maintenance during the period between the date hereof and the date of delivery of possession of said property; it being further understood that no inventory of the property need be taken, but that due care will be exercised by the United States in preserving and safeguarding the aforesaid real and personal property intact until possession thereof passes to the company. If any part or parts of the aforesaid plants necessary for proper operation of same have been removed by the United States, said part or parts

shall be returned when possession of said plants passes to the company. Deeds of conveyance of real property shall warrant the title to be good and unencumbered, but in accordance with and subject to the provisions set forth in paragraph 12 hereof.

SEC. 14. Since the manufacture, sale, and distribution of commercial fertilizers to farmers and other users thereof constitute one of the principal considerations of this offer, the company expressly agrees that, continuously throughout the lease period, except as it may be prevented by reconstruction of the plant itself, or by war, strikes, accidents, fires, or other causes beyond its control, it will manufacture nitrogen and other commercial fertilizers, mixed or unmixed, and with or without filler, according to demand, at nitrate plant numbered 2 or its equivalent, or at such other plant or plants, adjacent or near thereto as it may construct, using the most economical source of power available. The annual production of these fertilizers shall have a nitrogen content of at least forty thousand tons of fixed-nitrogen, which is the present annual capacity of nitrate plant numbered 2. If during the lease period said nitrate plant numbered 2 is destroyed or damaged from any cause, the company agrees to restore such plant, within a reasonable time, to its former capacity and further agrees:

(a) To determine by research whether by means of electric-furnace methods and industrial chemistry there may be produced on a commercial scale fertilizer compounds of higher grade and at lower prices than farmers and other users of commercial fertilizers have in the past been able to obtain, and to determine whether in a broad way the application of electricity and industrial chemistry may accomplish for the agricultural industry of the country what they have economically accomplished for other industries, and if so found and determined, to reasonably employ such improved methods.

(b) To maintain nitrate plant numbered 2 in its present state of readiness or its equivalent for immediate operaton in the manufacture of materials necessary in time of war for the production of explosives.

SEC. 15. In order that farmers and other users of fertilizers may be supplied with fertilizers at fair prices and without excessive profits, the company agrees that the maximum net profit which it shall make in the manufacture and sale of fertilizer products shall not exceed 8 per centum of the fair actual annual cost of production thereof. In order that this provision may be carried out, the company agrees to the creation of a board of not more than nine voting members, chosen as follows:

The three leading representative farm organizations, national in fact, namely, the American Farm Bureau Federation, the National Grange, the Farmers' Educational and Cooperative Union of America, or their successor or successors (said successor or successors to be determined, in case of controversy, by the Secretary of Agriculture), shall each designate not more than seven candidates for said board in the first instance and thereafter, for succession in office, not more than three candidates. The President shall nominate for membership on this board not more than seven of these candidates, selected to give representation to each of the above-mentioned organizations, said nominations to be made subject to confirmation by the Senate, and there shall be two voting members of said board selected by the company: *Provided*, That not more than one shall be nominated by the President from the same State; that if the Senate shall not confirm all of said seven nominees the President shall send additional names from said list of candidates until the Senate shall have confirmed seven: *Provided further*, That if either or any of said farm organizations or its or their successors by reason of the expiration of its or their charter or ceasing to function or failing to maintain its organization or for any cause or reason should decline, fail, or neglect to make such designations, then the Secretary of Agriculture shall make such designation or designations for such or all of said organizations as may so decline, fail, or neglect to make such designation; and if such designation is made by the Secretary of Agriculture for only one or two of said organizations, then such designation shall be made so as to give the remaining organization or organizations the same right and in the same proportion to designate candidates for said board as in the first instance and just as though all of said organizations were making such designations: *Provided, however*, That a failure to make designations at any one time shall not thereafter deprive any organization of its original rights under this section: *And provided further*, That the terms of office of the first seven candidates nominated by the President and confirmed by the Senate on the designation of said farm organizations shall be as follows: Two for a period of two years, two for a period of four years, and the remaining three for a period of six years, and thereafter the nominations for membership

on said board made by the President, except for unexpired terms, shall be for six years each. None of the members of said board shall draw compensation from the Government, except that any which may be nominated and confirmed on the designation of the Secretary of Agriculture under the provisions hereof shall receive from the Government their actual expenses while engaged in work on said board.

A representative of the Bureau of Markets, Department of Agriculture, or its legal successor, to be appointed by the President, shall also be a member of the board serving in an advisory capacity without the right to vote. The said board shall determine what has been the cost of manufacture and sale of fertilizer products and the price which has been charged therefor, and if necessary for the purpose of limiting the annual profit to 8 per centum as aforesaid, shall regulate the price at which said fertilizer may be sold by the company. For these purposes said board shall have access to the books and records of the company at any reasonable time. In order that such fertilizer products may be fairly distributed and economically purchased by farmers and other users thereof, the said board shall determine the equitable territorial distribution of the same and may in its discretion make reasonable regulation for the sale of all or a portion of such products by the company to farmers, their agencies or organizations. If and when said board can not agree upon its findings and determinations, then the points of disagreement shall be referred to the Federal Trade Commission (or its legal successor) for arbitration and settlement, and the decision of said commission in such cases shall be final and binding upon the board.

SEC. 16. Whenever, in the national defense, the United States shall require all or any part of the operating facilities at nitrate plant numbered 2 for the production of materials necessary in the manufacture of explosives or other war materials, then the United States shall have the immediate right, upon five days' notice to the company, to take over and operate the same, and the company will supply the United States with hydroelectric power necessary for such operations, together with the use of all patented processes which the United States may need which the company owns or has the right to use. When required for national defense, any of the company's personnel and operating organization necessary for operating any part of nitrate plant numbered 2 in the manufacture of materials for explosives or other war materials shall be at the disposal of the United States. For the facilities and services aforesaid the United States shall protect the company from losses occasioned by such use and shall return the said property in as good condition as when received and reasonably compensate the company for the use thereof. All duly authorized agents and representatives of the United States shall have free access at all reasonable times to inspect and study all of the operations, chemical processes, and methods employed by the company at nitrate plant numbered 2, provided that such agents and representatives shall not use the information and the facts concerning any of the company's operations, except for the benefit and protection of the United States.

SEC. 17. In order that said company may be supplied with electric power and the farmers and other users with fertilizers after the termination of the said one-hundred-year leases, should the United States elect not to operate said power plants but determine to lease or dispose of same, the company shall have the preferred right to negotiate with the United States for such lease or purchase, and upon such terms as may then be prescribed by Congress.

SEC. 18. In addition to any other remedies that may be possessed by the United States, and as a further method of procedure in the event of the violation of any of the terms of this proposal or any contracts made in furtherance of its terms, the company agrees that the Attorney General may, upon the request of the Secretary of War, institute proceedings in equity in the District Court of the United States for the Northern District of Alabama for the purpose of canceling and terminating the lease of Dam Numbered 2 or Dam Numbered 3, or both of them, because of such violation or for the purpose of remedying or correcting by injunction, mandamus, or other process, any act of commission or omission in violation of the terms of this proposal or any contract made in furtherance thereof.

SEC. 19. The Gorgas steam plant and transmission line having been sold by the United States, and Henry Ford having included said steam plant and transmission line in his offer of May 31, 1922 (as found in section 12 and in subsection (d) of section 11 of said offer), in order to provide a substitute steam plant the Secretary of War is hereby authorized and directed to acquire by purchase or

condemnation a suitable site for a steam power plant, to be located at or near Lock and Dam Numbered 17, Black Warrior River, Alabama, together with a strip of land one hundred feet wide to serve as a right-of-way between said steam power plant and nitrate plant numbered 2, Muscle Shoals, Alabama, with connection to Waco quarry, near Russellville, Alabama.

The Secretary of War is further authorized and directed to contract with Henry Ford or the company to be incorporated by him for the construction at cost of a steam power plant having a generating capacity of approximately thirty thousand kilowatt (forty thousand horsepower), a transformer substation of similar capacity and a transmission line of suitable design and capacity connecting said steam power plant with nitrate plant numbered 2 and the Waco quarry, all under the supervision of the Chief of Engineers, United States Army. The plans and specifications for said power plant, substation and transmission line shall be prepared by Henry Ford, or the company to be incorporated by him, and approved by the Chief of Engineers, United States Army.

The expenditures authorized to be made for all purposes under this section shall not exceed a total of $3,472,487.25.

SEC. 20. All of the contracts, leases, deeds, transfers, and conveyances necessary to effectuate the acceptance of said offer shall be binding upon the United States, and jointly and severally upon Henry Ford, his heirs, representatives and assigns, and the company to be incorporated by him, its successors and assigns.

SEC. 21. The appropriations necessary to carry out the provisions of this act on the part of the Government are hereby authorized.

SEC. 22. That all laws and parts of laws in conflict herewith be, and the same are hereby, repealed.

[H. R. 3222, Sixty-eighth Congress, first session.]

A BILL To authorize and direct the Secretary of War, for national defense in time of war and for the production of fertilizers and other useful products in time of peace, to lease to Henry Ford, or a corporation to be incorporated by him, nitrate plant numbered 1, at Sheffield, Alabama; nitrate plant numbered 2, at Muscle Shoals, Alabama; Waco quarry, near Russellville, Alabama; and to lease to Henry Ford, or a corporation to be incorporated by him, Dam Numbered 2 and Dam Numbered 3 (as designated in House Document 1262, Sixty-fourth Congress, first session), and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to accept the proposal of Henry Ford, dated the 31st day of May, 1922, the Secretary of War is hereby authorized and directed, for and in behalf of the United States of America, to execute any and all proper assignments, contracts, leases, deeds, transfers, and conveyances necessary to effectuate the acceptance of said offer, except such parts of said offer as relate to the Gorgas plant and transmission line (as found in section 12 and in subsection (d) of section 11 of the proposal of Henry Ford, dated May 31, 1922), as follows:

SECTION 1. For the purpose of carrying out the terms of this agreement, Henry Ford will form a corporation (hereinafter referred to as the company) with a capital stock of $10,000,000 or more, of which at least $10,000,000 shall be paid in, in cash, to be controlled by the company, which company will immediately enter into and execute all necessary or appropriate instruments of contract to effectuate this agreement.

SEC. 2. The United States shall complete Dam Numbered 2, its locks, power house, and all necessary equipment, shall progressively install the hydroelectric equipment in said power house up to a capacity of approximately six hundred thousand horsepower, and shall acquire all necessary lands and flowage rights, including lands for railway and terminal connections.

SEC. 3. The company will lease from the United States Dam Numbered 2, its power house, and all of his hydroelectric and operating appurtenances, except the locks and other navigation facilities, together with all lands and buildings owned or to be acquired by the United States and connected with or adjacent to either end of the said dam and used or useful for purposes of power development, for a period of fifty years from the date when structures and equipment of a capacity of one hundred thousand horsepower are constructed and installed and ready for service; and will pay to the United States as reasonable annual recompense for the use thereof, to cover interest, maintenance and depreciation thereon, 6 per centum of the actual cost of acquiring lands and flowage rights and of constructing the dam, power house, and power-house facilities (but not including the cost of locks or other navigation facilities), such payment to be made annually at the end of each calendar year of the lease period; except that during and for the first six years of the lease period, payments shall be in the fol-

lowing amounts and payable at the following times, to wit, $200,000 at the end of the calendar year during which the installation of one hundred thousand horsepower is completed and made ready for service, and thereafter $500,000 annually at the end of each calendar year for five years: *Provided*, That in the proportion that the electric energy capable of being produced in any calendar year in said power house when operated in conjunction with the steam-power plants forming a part of the properties named in paragraph 7 hereof is used by the company in manufacture of nitrogen and other commercial fertilizers, mixed or unmixed, the annual recompense payable on the same proportion of said cost of acquiring lands and flowage rights and of constructing said dam, power house, and power-house facilities shall be 3 per centum.

SEC. 4. The company at its own expense will make all necessary renewals and repairs incident to efficient maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house, and will maintain the same in efficient operating condition; it being understood that all necessary repairs, maintenance, and operation of Dam Numbered 2, its gates and locks, shall be under the direction, care, and responsibility of the United States, and at its expense, during the said fifty years lease period.

SEC. 5. At all times during the period of the lease of Dam Numbered 2 the company will furnish to the United States, free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, United States Army, electric power to an amount necessary for the operation of the locks, but not in excess of two hundred horsepower.

SEC. 6. The United States shall reserve for a period of three years from the date of acceptance of this offer the power site at the proposed location of Dam Numbered 3, during which period the company shall have the preference for a license for said site, upon application therefor, under the provisions of the Federal water power act.

SEC. 7. The United States will lease to the company for said period of fifty years and for an annual rental of $1 the following properties, to wit:

(a) All of the property constituting nitrate plant numbered 2 (as officially known and designated) including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools, and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred or assigned to a purchaser of nitrate plant numbered 2 by the United States, together with the sulphuric-acid units now in storage on the premises.

(b) All of the property constituting nitrate plant numbered 1 (as officially known and designated), including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools, and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred to a purchaser of nitrate plant numbered 1 by the United States, but the company shall not be obligated to operate nitrate plant numbered 1 as an air nitrogen fixation plant.

(c) All of the property constituting the Waco quarry (as officially known and designated), including rights-of-way and buildings, material, quarry tracks, machinery, railroad tracks, appurtenances, tools, and supplies.

SEC. 8. Since the manufacture, sale, and distribution of commercial fertilizers to farmers and other users thereof constitutes the principal consideration of this offer, the company expressly agrees that, continuously throughout the lease period, except as it may be prevented by reconstruction of the plant itself, or by war, strikes, accidents, fires, or other such causes beyond its control, it will manufacture nitrogen and other commercial fertilizers, mixed or unmixed, and with or without filler, according to demand, at nitrate plant numbered 2 or its equivalent, or at such other plant or plants as it may construct, using the most economical source of power available. The annual production of these fertilizers shall have a nitrogen content of at least forty thousand tons of fixed nitrogen, which is the present annual capacity of nitrate plant numbered 2. If, during the lease period, said nitrate plant numbered 2 is destroyed or damaged from any cause, the company agrees to restore such plant, within a reasonable time, to its former capacity, and further agrees:

(a) To determine by research whether by means of electric-furnace methods and industrial chemistry there may be produced, on a commercial scale, fertilizer compounds of higher grade and at lower prices than farmers and other users of commercial fertilizers have in the past been able to obtain, and to determine whether in a broad way the application of electricity and industrial chemistry may accomplish for the agricultural industry of the country what they

have economically accomplished for other industries, and, if so found and determined, to reasonably employ such improved methods.

(b) To maintain nitrate plant numbered 2 in its present state of readiness, or its equivalent, for immediate operation in the manufacture of materials necessary in time of war for the production of explosives.

SEC. 9. In order that farmers and other users of fertilizers may be supplied with fertilizers at fair prices and without excessive-profits, the company agrees that the maximum net profit which it shall make for any year in the manufacture and sale of fertilizer products shall not exceed 8 per centum of the fair actual cost of production thereof during such year, and that in determining such cost no items shall be included which do not represent expenditures actually made by the company, except such credits to depreciation or amortization reserves on account of properties used or useful in the manufacture of nitrogen or other commercial fertilizers as may be approved by the board hereinafter provided.

In order that this provision may be carried out the company agrees to the creation of a board of not more than nine voting members, chosen as follows: The three leading representative farm organizations, national in fact, namely, the American Farm Bureau Federation, the National Grange, the Farmers' Educational and Cooperative Union of America, or their successor or successors (said successor or successors to be determined, in case of controversy, by the Secretary of Agriculture), shall each designate not more than seven candidates for said board in the first instance and thereafter, for succession in office, not more than three candidates. The President shall nominate for membership on this board not more than seven of these candidates, selected to give representation to each of the above-mentioned organizations, said nominations to be made subject to confirmation by the Senate, and there shall be two voting members of said board selected by the company: *Provided*, That not more than one shall be nominated by the President from the same State; that if the Senate shall not confirm all of said seven nominees the President shall send additional names from the said list of candidates until the Senate shall have confirmed seven: *Provided further*, That if either or any of said farm organizations or its or their successors by reason of the expiration of its or their charter or ceasing to function or failing to maintain its organization or for any cause or reason should decline, fail, or neglect to make such designations, then the Secretary of Agriculture shall make such designation or designations for such or all of said organizations as may so decline, fail, or neglect to make such designation; and if such designation is made by the Secretary of Agriculture for only one or two of said organizations, then such designation shall be made so as to give the remaining organization or organizations the same right and in the same proportion to designate candidates for said board as in the first instance and just as though all of said organizations were making such designations: *Provided, however*, That a failure to make designations at any one time shall not thereafter deprive any organization of its original rights under this section: *And provided further*, That the terms of office of the first seven candidates nominated by the President and confirmed by the Senate on the designation of said farm organizations shall be as follows: Two for a period of two years, two for a period of four years, and the remaining three for a period of six years, and thereafter the nominations for membership on said board made by the President, except for unexpired terms, shall be for six years each. None of the members of said board shall draw compensation from the Government, except that any which may be nominated and confirmed on the designation of the Secretary of Agriculture under the provisions hereof shall receive from the Government their actual expenses while engaged in work on said board. A representative of the Bureau of Markets, Department of Agriculture, or its legal successor, to be appointed by the President, shall also be a member of the board serving in an advisory capacity without the right to vote. The said board shall determine what has been the cost of manufacture and sale of fertilizer products and the price which has been charged therefor, and if necessary for the purpose of limiting the annual profit to 8 per centum as aforesaid, shall regulate the price at which said fertilizer may be sold by the company. For these purposes said board shall have access to the books and records of the company at any reasonable time. In order that such fertilizer products may be fairly distributed and economically purchased by farmers and other users thereof, the said board shall determine the equitable territorial distribution of the same and may in its discretion make reasonable regulation for the sale of all or a portion of such products by the company to farmers, their agencies or organizations. If and when said board can not agree upon its findings and determinations, then the points of disagreement shall be referred to the Federal Trade Commission (or its legal successor) for arbitration

and settlement, and the decision of said commission in such cases shall be final and binding upon the board.

SEC. 10. The company shall operate the said power house and equipment and any steam power plants now forming part of the properties named in paragraph 7 (11) hereof, or which may hereafter be constructed in connection therewith, so as to produce the fullest practicable output of usable or salable electric energy, and shall either itself transmit, distribute, and sell all surplus energy not used by it in the manufacture of nitrogen or other commercial fertilizers, or enter int o contracts for such transmission, distribution, and sale. Such transmission distribution, and sale and contracts therefor shall be subject to the regulation snd control of the properly constituted authorities of the State or States in which su h transmission, distribution, or sale is effected, or of the Federal Power Commission, within the respective jurisdiction of each as provided by the Federal water power act. The company shall also establish and maintain for its entire operation such system of accounts as may be prescribed by said commission, and said commission shall have, with respect to the accounts, books, and records of the company, the same authority which it has with respect to the accounts, books, and records of licensees under said act.

SEC. 11. The determination of the proportion of electric energy used in the manufacture of nitrogen and other commercial fertilizers shall, for the purposes specified in paragraph 3 hereof, rest with the Federal Power Commission, and its decisions with respect thereto shall be final. Said commission shall also have authority to determine the practicable output of usable or salable electric energy to be produced, and to determine the adequacy of repairs and the necessity of renewals incident to efficient maintenance and operation of said power house, substructures, superstructures, machinery, and appliances appurtenant thereto.

SEC. 12. Whenever the company is directly benefited by the construction of a licensee of the United States or by the United States itself of a storage reservoir or other headwater improvement, the company shall reimburse the owner of such reservoir or other improvement for such part of the annual charges for interest, maintenance, and depreciation thereon as the Federal Power Commission shall determine to be equitable; and whenever such reservoir or other improvement is constructed by the United States the company shall pay to the United States similar charges similarly determined.

SEC. 13. Whenever, in the national defense, the United States shall require all or any part of the operating facilities at nitrate plant numbered 2, for the production of materials necessary in the manufacture of explosive or other war materials, then the United States shall have the immediate right, upon five days' notice to the company, to take over and operate the same, and the company will supply the United States with hydroelectric power necessary for such operations, together with the use of all patented processes which the United States may need which the company owns or has the right to use. When required for national defense, any of the company's personnel and operating organization necessary for operating any part of nitrate plant numbered 2 in the manufacture of materials for explosives, or other war materials, shall be at the disposal of the United States. For the facilities and services aforesaid the United States shall protect the company from losses occasioned by such use and shall return the said property in as good condition as when received and reasonably compensate the company for the use thereof. All duly authorized agents and representatives of the United States shall have free access at all reasonable times to inspect and study all of the operations, chemical processes, and methods employed by the company at nitrate plant numbered 2, provided that such agents and representatives shall not use the information and the facts concerning any of the company's operations, except for the benefit and protection of the United States.

SEC. 14. In order that the farmers and other users may be supplied with fertilizers after the termination of the said fifty years lease period, should the United States elect not to operate said power plant and other properties, or any of them, but determine to lease or dispose of the same, the company shall have the preferred right to negotiate for a renewal of lease with such agency of the United States as is authorized to lease or dispose of said plants and properties; and in the event the terms of the renewal offered by the United States are not accepted by the company, the conditions of this offer shall remain in effect until the United States shall lease or dispose of said plants and properties to another under terms no less favorable to the United States than offered to the company. In the event said plants and properties are leased or disposed of to another, the company shall be reimbursed for new properties or for additions to or betterments of existing properties constructed or made at its own expense and used or

useful in the manufacture of nitrogen or other commercial fertilizers in an amount equal to the fair value not to exceed actual cost of such properties, additions, or betterments.

SEC. 15. In addition to any other remedies that may be possessed by the United States, and as a further method of procedure in the event of the violation of any of the terms of this offer or of any contracts made in furtherance of its terms, the company agrees that the Attorney General may upon request of the Federal Power Commission institute proceedings in equity in the District Court of the United States for the Northern District of Alabama for the purpose of canceling and terminating the lease of Dam Numbered 2 or of the other properties named herein, or both, because of such violation, or for the purpose of remedying or correcting by injunction, mandamus, or other process, any act of commission or omission in violation of the terms of this offer or of any contract made in furtherance thereof.

SEC. 16. The above proposals are submitted for acceptance as a whole and not in part. Upon acceptance, the promises, undertakings, and obligations shall be binding upon the United States, and jointly and severally upon the undersigned, his heirs, representatives and assigns, and the company, its successors and assigns; and all the necessary contracts, leases and other instruments necessary or appropriate to effectuate the purposes of this proposal shall be duly executed and delivered by the respective parties above mentioned.

Mr. MCKENZIE. Mr. Chairman, before proceeding with the testimony on the matter before the committee, I would simply like to call attention to the fact that there are now before us a number of bills—H. R. 8, introduced by Mr. Madden, which is an exact copy of H. R. 518, introduced by Mr. McKenzie, which is the original Military Affairs Committee bill, and H. R. 3222, introduced by Mr. Dickinson, of Iowa—and there is also before the committee a suggestion or statement made by our colleague, Mr. Hull, purporting to give a tentative offer from certain power companies, known as the Southern Power Co., as I understand it.

Mr. HULL. Not the Southern Power Co.; it is several power companies.

Mr. MCKENZIE. Well, power companies located in the South.

Mr. HULL. Yes.

Mr. MCKENZIE. And I assume that the hearing will revolve around the original committee bill, with suggestions for such amendments as are deemed wise.

The CHAIRMAN. That is the way I understand it. Now, there are one or two letters that I have received this morning. Here is a letter from Gray Silver, of the American Farm Bureau Federation. I will ask the clerk to read it, and it will give you an idea of what you have before you.

The CLERK (reading):

AMERICAN FARM BUREAU FEDERATION,
Washington, D. C., January 14, 1924.

Hon. JULIUS KAHN,
Chairman Military Affairs Committee,
Washington, D. C.

DEAR MR. KAHN AND MEMBERS: It is reported that Secretary of War Weeks asked of your committee that all matters pertaining to Muscle Shoals be referred to a small, select committee with authority to "trade," at which we are not surprised, for we remember his attitude in choosing between the farmers' welfare and the wishes of the special interests in disposing of the Gorgas plant.

Permit me, gentlemen, to register a protest on both counts. We are opposed to referring it to a small, select committee, believing that the regularly constituted committees should arrive at a conclusion on this matter, and we are also opposed to its being "traded" in any way, believing it should be determined upon merit.

And may I say further that referring it to a small committee and giving that committee authority to "trade" impresses the farmer mind with star-chamber and dark-alley methods, a procedure which is repugnant to farmers everywhere? Besides they are satisfied to submit this question to the regularly constituted committees.

Disposition of Muscle Shoals has been pending since the plant closed down at the end of the World War. Some five years have elapsed. Not only has the Government spent millions in maintenance but the farmers have lost from a hundred to a hundred and fifty million dollars a year by its failure to operate, making a grand total of some five hundred to seven hundred and fifty million dollars.

This delay has been brought about largely by greedy and selfish interests who do not want the farmer served on the basis provided in the Ford tender, but prefer to have it in their control that the public may be exploited.

The wish of those for whom I speak is that this matter be now determined without further delay, requesting of your committee a report so that a roll call vote may be had on the floor and so the farmer may know those on whom he may depend in this hour of agricultural distress.

Thanking you gentlemen of the committee for past courtesies and trusting that you may see your way clear to reporting the Ford tender to the House at an early date, I am,

Very truly yours,

AMERICAN FARM BUREAU FEDERATION,
GRAY SILVER,
Washington Representative.

The CHAIRMAN. I have had this letter read to you, gentlemen, because I know nothing whatever about it. This is the first time I have ever heard of any combination being made or the Secretary of War having taken any hand in the matter at all. He never spoke to me at any time; I do not know whether he has spoken to any member of the committee, but in response to this letter from Mr. Silver I want to say that I do not know any member of the committee who has heard anything about the matter.

Mr. WAINWRIGHT. Mr. Chairman, may I be heard for a moment?

The CHAIRMAN. Yes.

Mr. WAINWRIGHT. It seems to me that the allusion to the Secretary of War is so uncalled for, so unmerited, so unjust, and so contrary to what the people of this country know about the Secretary of War that it really does not need any answer, and I am not going to attempt to make any defense or any explanation, because I do not think it is necessary. But I do want to call attention to the fact, Mr. Chairman, that there are other people in this country who are interested in this Muscle Shoals proposition as well as the agricultural interests, and it seems to me that the matter involves such broad considerations that we need not confine our attention to it entirely as a matter affecting the agricultural interests of the country.

I do not happen to come from an agricultural region. Of course, in common with all the people of this country, we are tremendously interested in agriculture and with that the agricultural interests shall have every consideration from the Government; but I would like to call attention to the fact that the part of the country from which I come has contributed very largely toward the construction of this plant. My principal interest in this, personally, is from the standpoint of national defense. The original object of the construction of this plant and the development of this whole project was, as everybody knows, by reason of a provision in the national defense act. Now, there have been so many propositions made with regard to Muscle Shoals and so many more that may be made if the thing is put in a proper posture, it seems to me that we are not ready to proceed really definitely upon any of the pending proposals.

As I understand, it is a long time since there has been any invitation from any responsible source for proposals from those who might be interested in taking this great enterprise over from the Government on terms that will be for the best interests of all those concerned. Now, I call attention to the reference to this project in the message of the President of the United States, and undoubtedly the proposal referred to in this letter is really the proposal made by the President of the United States for a small commission to consider this project, and I really think that should be given some weight by this committee. It should be put in a situation that the best proposal can be brought out, and that there may be negotiations between the various interests who may make proposals. Now, I feel very strongly, Mr. Chairman, that that should be acted upon and I suggest, before we take up any proposals which are really stale—the proposal we are considering to-day, as I understand, is one that was made some time ago—that some such course as this be taken, namely, that the chairman of this committee appoint a small number of our own committee—two or three—to confer with the President of the United States and see what he really had in mind, and to see if we can not lend ourselves to the appointment of some commission that can really handle this matter upon the plane that I believe it should be handled.

Mr. Chairman, I simply offer that as a suggestion to the committee, before we proceed further in this matter, that such a small number, a delegation or whatever

you may call it, from this committee, be appointed to confer with the President as to what he had in mind.

Mr. McKENZIE. Mr. Chairman, I do not want to take the time of the committee to discuss this, but merely to state that I differ absolutely with the position taken by my friend from New York. However, in our committee is the place to fight those matters out, when we are in executive session, and I would be glad to have that matter taken up at any time; but the meeting this morning, as I understand it, is for the specific purpose of permitting some of our colleagues to express to us their views in connection with this great proposition and for no action of the committee.

The CHAIRMAN. Your idea is that we will take up such matters as Mr. Wainwright spoke about in executive session.

Mr. McKENZIE. Certainly. In the meantime, we will go on with the hearing.

Mr. WAINWRIGHT. That is entirely agreeable to me.

Mr. HILL of Alabama. I understand that the friends of the offer, about which we are to hear this morning, have agreed among themselves that Mr. Madden of Illinois, and Mr. Garrett of Tennessee, are to do the talking. I therefore ask that the committee proceed to hear from Mr. Madden.

The CHAIRMAN. If there is no objection, that will be the course we will take, and we will now hear from Mr. Madden.

STATEMENT OF HON. MARTIN B. MADDEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS.

Mr. MADDEN. In coming before you to-day I do so only because the great interest which I know the Nation has in the settlement of the Muscle Shoals problem. Muscle Shoals was a "war baby"; it was begun with the hope and expectation we would be able, if the war continued long enough, to make our own nitrates for war purposes. That was the primary object in beginning the investments we have thus far made. Happily, the war closed before we completed the project and, while some nitrates were made, it was not a very large quantity, but I think the feasibility of the project was proved beyond a question.

After the war closed the question was then what to do with this great enterprise; for it is a great enterprise and it is an enterprise in which the Nation is interested, not only because of its desire to see agricultural development, but to see, in case of war, that we have an institution where we can make our own nitrates.

Then, the problem is and has been who is going to operate it. What has been the experience in the past of Government operation? I think no one will deny that the Government is not an economical operator, and I take it that our job is to do the best we can to put the investments of the Government on such a basis that it will produce the best national results. If the Government invests money in an enterprise that can be used for the better creation of prosperity in the Nation, I take it that it is our duty to so utilize it; and, believing as I do, that agriculture is the fundamental, basic industry in the United States, without which all other industries must fade into insignificance, I think it becomes our duty to think seriously on this subject, with agriculture as a paramount object to be served. I do not want to advocate, with my friend from New York, that agriculture ought not to be given paramount consideration; but, after all, I think he will agree that the great industries of his own State would have little weight anywhere if it were not for agriculture.

I come from a great agricultural State; from a great manufacturing State as well. I happen, by chance, to represent a great city district; but I was born in the fields, so to speak, and I was reared there, and my heart goes back to the place of my birth. The call is insistent; I can not avoid it. And I come here to-day to repeat what I have already said on the floor of the House, that the Nation is looking to us to have the wisdom to adjust this pending problem along proper lines.

Now, the question is what are proper lines. I am not interested in anybody's project; not interested in the individual who may be making proposals. I am only interested in the final solution and my interest in the final solution leads me to the conclusion that it can not finally be solved unless you solve it right, and that there is no use to try to find a solution that does not involve all of the elements in the case. Proposals there are; of course, many. They deal with various phases of the subject. But there is only one proposal that deals with all of the phases of the subject, just one, and it is to that proposal that I propose to address myself, Mr. Chairman. And I shall endeavor to give you the figures as clearly

and as concisely as I possibly can. These figures are the result of great research on my part; I did not compile them to-day or yesterday, I compiled them for a speech which I made in the House during the last Congress. They are just as true to-day as they were then; so I will try to give them to you. I devoted a great deal of time, as I say, in gathering them and I feel that they may be relied upon as absolutely accurate; but if there is anybody else who wishes to check them up and see whether they are accurate or not, I will be very happy, because I do not want anyone to take my absolute statement without ascertaining whether or not it is correct.

So far the investment to June 30, 1922—I just take that from the beginning of the fiscal year 1923; we have made appropriations since that time, but I have not taken the time to try to check up the expenditures under those appropriations—is as follows: We expended for construction costs, nitrate plant No. 1, $12,887,941. On nitrate plant No. 2, including $1,302,962.88 on account of Waco quarry, we have expended $67,555,355. On the Gorgas-Warrior plant and transmission line, we spent $4,975,782. That plant has been sold since that time for $3,400,000. On Dam No. 2, Wilson Dam, including commitments under contract, we expended $16,281,760. That is a total of $101,704,838.

For maintenance cost, including experimental operations at nitrate plants and research laboratory, we expended on Dam No. 2, $277,577; nitrate plant No. 1, $907,966; and plant No. 2, $3,613,771, the two together being $4,521,737; and on the research laboratory $833,558, or a total of $5,632,872.

All these figures combined aggregate $107,337,710 and they represent the total outlay of the Government, or the investment, up to June 30, 1922.

The question is now what do we have or what are we able to accomplish at this time. First, Dam No. 2, the Wilson Dam, is incomplete; Dam No. 3 has not even been started. So we have no water power.

Secondly, nitrate plant No. 1, originally designed to produce 9,000 tons of fixed nitrogen in the form of ammonium nitrate, employing a modification of the Haber process, has been completed only up to one-fourth of its capacity. It was purely an experimental venture and, up to this time, has not proven successful. The experiment has cost the Government $12,887,941, and an additional outlay for new machinery, costing in the neighborhood of $2,000,000, would be necessary if further experiments are to be undertaken. Furthermore, the employment of this method is fraught with great danger from explosion of the high-pressure tanks in which nitrogen and hydrogen are impounded. To put the plant on a production basis, employing the latest improved methods, would cost approximately another $4,000,000.

Third, nitrate plant No. 2, employing the cyanamid process, has been completed to its designed capacity of 40,000 tons of fixed nitrogen in the form of ammonium nitrate, and was operated successfully during a few weeks' trial run, but the cyanamid process is considered by the experts to be obselete as a fertilizer process, which most probably will make it necessary to replace the machinery and, to some extent, the buildings.

So there you are. That is rather a doleful picture after an expenditure of $107,000,000, is it not? And then we are told that the Government can operate it. Well, if the Government can not calculate better than this, it can not operate it; but if you will take the time to delve into the mass of data bearing on the subject, you will find that I have given you the actual facts.

Now, having gone thus far, what is the best way out? That is the question that comes to us. We have an obligation to discharge. We are responsible for there having been used well over $100,000,000, and the people expect, and we owe them, a proper return on the investment. Shall we go on in the face of what we have experienced and make renewed efforts to make a go of the thing ourselves, irrespective of what the ultimate cost might be? Just let us examine carefully what this course would quite certainly mean. It is worth while. We can not engage in a more interesting study or one that is more worth while from the standpoint of the Treasury. There ought not to be anybody in either House of Congress—and I feel sure there is not—who is not anxious to settle this question on a basis that will in the ultimate long run be for the best interests of all the people.

In the first place, we would have to complete the Wilson Dam, Dam No. 2, before we can do anything as a Government, and the estimated cost from June 30, 1922, up to the completion of the dam, is $25,000,000 more. Then, to make up for the defects or shortcomings of the present layout, so as to put the plants on a going basis, that fertilizer of a suitable type, in adequate quantities and marketable at a reasonable price, may be produced, and that facilities at all

times may be available for the manufacture of explosives and other war materials, we find it necessary to provide approximately these additional sums:

1. Auxiliary or reserve water supply to stabilize the flow of the Tennessee River, that a uniform amount of power would be available the year around	$20,000,000
2. For remodeling nitrate plant No. 1	4,000,000
3. For remodeling nitrate plant No. 2	10,000,000
4. For a phosphoric-acid plant to meet the demand for a mixed fertilizer	15,000,000
5. Operating fund	10,000,000
Total	59,000,000

These make a total of $59,000,000. Add to that the $25,000,000 to complete the Wilson Dam and the $107,000,000 already invested, and our total outlay will have amounted to $191,000,000. In other words, we will have to sink another $84,000,000 into the venture before we can function on an economical business basis, excluding, of course, let me emphasize, any return whatever on the investment. I seriously doubt if, under Government operation, we could even include in the selling price of the fertilizer other usual items of overhead and keep the price at a figure which the farmer could afford to pay.

Now, what is the alternative? We can not stop. We owe it to the Nation to see this thing through. We are the instrumentalities through which the Nation acts; we are the megaphones through which the people speak. This is not a democracy; it is a representative Government, so we sit here in the persons of the people—we are the people. Now, the question is, Are we going to speak for the people or are we going to speak otherwise? What do the people want? If we judge from the sentiment that has been expressed throughout the Nation, I should think they want this matter disposed of in such a way that will finally do something for the people who own it. Now, what is it we can do to make it do something for the people? Can we develop agriculture, put it on a better paying basis than it is by manufacturing nitrates at prices the farmers can afford to pay? If we can, should we? That is the question. Is it an issue of consequence to the people, to the manufacturer, the banker, the lawyer, the tailor, the tinker, and the baker? Do they join in the prosperity that comes from the development of the soil? I do not think anybody would say they do not.

The question is should we set aside the investment we have already made, in a sale or a lease of this property, if by doing so we can be assured, in a reasonable way, that we will produce the results I have indicated.

Speaking for myself and for the prople whom I represent—and I think I speak for the people I represent, on this subject, for I have had their sentiment expressed substantially unanimously—they live in a city district. You would wonder how they would be concerned, living in a city district, many of them never having been in the country at all; but they realize that their prosperity comes from without and not from within—without, means the farm. And they are as nearly unanimous as a community could be for the disposition of this and the settlement of it in a way that will help to produce prosperity among the farmers of the United States. And they do not care in what section of the Nation the farmer lives. It is not a sectional question; it is a national question. The farmer needs the nitrates. Nobody will deny that, and the whole life of the nation may at some time hinge upon our ability to supply the necessary munitions, ingredient to the Army and the Navy.

The answer is to go ahead at all hazards or, I should say, in spite of all hazards—that is about what it means—or to let private enterprise step in and do the job for us.

Now, let us see what private enterprise has to offer. I refer to the Ford offer when I say "private enterprise," for it is well known I have advocated the adoption and acceptance of this proposal.

In the first place, we must put up another $50,000,000, dating from June 30, 1922, to complete the Wilson Dam and to build the Dam No. 3, to be located about 15 miles upstream from Dam No. 2; the work on both dams to be prosecuted by Mr. Ford at actual cost. That is what we would have to put up, anyway, if we make a contract of sale or lease, or both, to Mr. Ford. We would then have invested $157,000,000 in this project, instead of the $191,000,000 that would be necessary if the Government should determine to finish and operate the plants and, of course, it should be borne in mind that the $191,000,000 does

not include any money whatever for Dam No. 3, the estimated cost of which is $25,000,000. That would have to be added to the $191,000,000.

Now, having provided the money for the two dams, to complete one and to build in its entirety the other, Mr. Ford then agrees——

First, to operate nitrate plant No. 2 in the manufacture of nitrates at its full present capacity, namely, 40,000 tons of fixed nitrogen per annum, for a period of 100 years.

Second, to maintain nitrate plant No. 2 at all times in efficient modernized operating condition for the use of the Government in time of war, to be placed at the disposal of the Government, in operating condition, in time of war. Is it worth anything to have that done, or would it be better to have the plant retained by the Government and allowed to deteriorate, so that it would not be in condition to be operated by anybody in time of war.

Third, to provide fertilizer to the full capacity of nitrate plant No. 2, with profit, if any, limited to 8 per cent above the fair actual cost of production. Now it has been said that Mr. Ford or his associates have not agreed to make nitrates unless they could make 8 per cent; but that is not what they say. Here is what they say—to provide fertilizer to the full capacity of nitrate plant No. 2, with profit, if any, limited to 8 per cent above the fair actual cost of production—limited to 8 per cent. That is to say, under no circumstances, at no time, will they accept or exceed a profit greater than 8 per cent.

Mr. WAINWRIGHT. May I ask a question.

Mr. MADDEN. Certainly.

Mr. WAINWRIGHT. I do not want to interrupt you——

Mr. MADDEN. Go ahead.

Mr. WAINWRIGHT. Do you understand that the contract would require Mr. Ford to manufacture nitrates, whether or not he made a profit.

Mr. MADDEN. Oh, absolutely. If I did not, I would not be for it.

Mr. HULL. If it could not be sold at a profit, he would still have to go on and manufacture it.

Mr. MADDEN. Yes, sir, and the profit would be limited to 8 per cent, as I understand it; it could not be more than 8 per cent, but it could be less, and he would manufacture the nitrates, at a profit, if any—if any profits—not exceeding 8 per cent.

Mr. HULL. My recollection is that the representatives of Mr. Ford, when they were before this committee, expressly said that that was one of the unavoidable causes that would cause the shutting down of the manufacture of nitrates.

Mr. MADDEN. Well, that is not as I understand it.

Mr. WAINWRIGHT. You mean to say that they could be compelled to manufacture nitrates even at a loss?

Mr. MADDEN. Oh, the contract would regulate that.

Mr. SPEAKS. Mr. Madden, might it not be on the same principle exactly that it is now claimed Mr. Ford could continue to manufacture his automobile and sell it at less than cost?

Mr. MADDEN. And make money?

Mr. SPEAKS. And still make abundant profits from the renewal of parts, might he not?

Mr. MADDEN. Yes.

Mr. SPEAKS. In the same manner some subsidiary operation there might enable him to carry out the contract to furnish fertilizer at even less than cost?

Mr. MADDEN. Yes.

Mr. WAINWRIGHT. You mean the incidental profit from the advantage of the water power would be sufficient?

Mr. SPEAKS. That may be the case; yes.

Mr. QUIN. On by-products?

Mr. WAINWRIGHT. Sufficient to enable him to manufacture fertilizer at a loss.

Mr. QUIN. The fertilizer would just be a waste, the by-product more than anything else.

Mr. MCSWAIN. My recollection, from reading the hearings, was the only way he could be relieved from that operation was by the order of the court.

Mr. MADDEN. I do not think there is any question about the fertilizer feature being included in this, and of course no man could live in the United States (I do not care whether Mr. Ford or whoever else he might be) who, after all this national agitation, had agreed to do a thing which everybody understood, if he repudiated it.

Fourth, to supply such quantities of fertilizer, mixed or unmixed. An agreement to furnish mixed fertilizer, composed of nitrogen, phosphoric acid, and potash, will necessitate the erection by Mr. Ford, at his own expense, of a phos-

phoric-acid plant at Muscle Shoals, estimated to cost $15,000,000, which the Government would have to do if we should decide to operate ourselves, which would mean we would have to add $25,000,000 for Dam No. 3 to the $191,000,000 and this $15,000,000 besides, and then there will be other charges to be added.

Fifth, to research fertilizer production and to employ such improved methods as may be found successful. Research! That is one of the great problems, just the research work alone, to ascertain what methods there may be developed from time to time that will enable the economical manufacture of the products needed to make the soil successful. The question is, Are we interested? Why, it is one of the great problems and I get so enthusiastic about it I can not contain myself. I can not get away from the fact that the settlement of this question is one of the greatest things that Congress can do and one of the things that will be more beneficial to the people of the United States than anything else we will do; if you stay in Congress for the next 20 years, any of you, you wont do as big a thing as this. And I can not help but think about the possibilities of it for the Nation.

Sixth, that the capital of $10,000,000 of the company to be formed shall be liable for the fulfillment of the contract, backed up (and just note this; this is what I think, others may not think so) by Mr. Ford's entire personal estate and that of his heirs and assigns. Well, now, he has got some estate and he has a record of achievement. He accomplishes the things that he undertakes. I never saw Ford in my life, but I can not help but see what he does, and I would like to see him doing for the farmer what he has been doing for himself; I would like to see the millions of people who are engaged in tilling the soil, the men who have to get out at 4 o'clock in the mornings and milk the cows and do the chores, then come in and get a hurried breakfast and then go out with the plow, or anything else they may have to do, and then come in at night again, after the sun goes down, and work until bedtime, and take a few hours sleep as they can best get it.

Mr. WAINWRIGHT. May I ask a question there? I am asking only for information.

Mr. MADDEN. Certainly. Do not apologize for asking me questions, because I am here to answer them.

Mr. WAINWRIGHT. Mr. Madden, do you understand Mr. Ford personally to guarantee the performance of this contract?

Mr. MADDEN. I understand that his estate is behind it and everything that he owns is behind it.

Mr. WAINWRIGHT. As I read it, it is simply the corporation's contract, which is to be formed.

Mr. MADDEN. I understand.

Mr. WAINWRIGHT. You say it is his contract; not the contract of the corporation?

Mr. MADDEN. Yes, sir; his contract, and of course his estate will be behind it.

The CHAIRMAN. Of course, Mr. Ford has never been before this committee. He had agents who did appear before the committee and the presumption has been right along that what his agents agree to Mr. Ford is willing to back up.

Mr. MADDEN. Now I just want to say this one thing further——

Mr. WAINWRIGHT. Just one more question.

Mr. MADDEN. Certainly.

Mr. WAINWRIGHT. Is there anything in this bill which would require him individually to guarantee the performance of this contract.

Mr. MADDEN. Well, this bill would be a contract before you get through; there will be contractual relations between the Government and Mr. Ford. The bill itself will be only the authorization for the contract.

Mr. MCKENZIE. If you will pardon me, if Mr. Wainwright will read this carefully he will find this legislation simply provides for entering into a contract.

Mr. MADDEN. Surely.

Mr. MCKENZIE. And sets forth the provisions that the contract shall contain.

Mr. MADDEN. This is only an authorization for the contract. "All the contracts, leases, deeds, transfers, and conveyances necessary to effectuate the acceptance of said offer shall be binding upon the United States, and jointly and severally upon Henry Ford, his heirs, representatives an assigns, and the company to be incorporated by him, its successors and assigns."

Mr. WAINWRIGHT. That is an answer.

Mr. WURZBACH. Of course, the contract would be made in accordance with the Ford proposal.

Mr. MADDEN. And under the act.

Mr. WURZBACH. Under the act and in accordance with the Ford proposal.

Mr. MADDEN. They will have to get together on the contract, but they can not get together outside of the act.

Mr. WURZBACH. I understand that.

Mr. HILL of Maryland. Section 20 as proposed in your bill provides for an absolute guaranty on the part of Henry Ford and his representatives to back this whole proposition.

Mr. MADDEN. That is what I said.

Mr. HILL of Maryland. That is not contained in the original offer, but you do not contemplate an acceptance of the offer unless it carries out section 20.

Mr. MADDEN. This is the law.

Mr. HILL of Maryland. That will be the law.

Mr. MADDEN. Yes; if it is passed.

Mr. HILL of Maryland. We were never able to get any clear statement in the hearings on that point from Mr. Ford's representatives.

Mr. MADDEN. That will be the law if it is passed.

Mr. HILL of Maryland. That will change my view materially.

Mr. MADDEN. Then no administrative authority of the Government would have the power to make a contract outside of the law. If you will let me go on with this, I would like to give you the figures.

The CHAIRMAN. I would suggest we allow Mr. Madden to proceed with his statement, and then we can ask questions of him when he has finished.

Mr. MADDEN. It will not take very long. I do not think that any of us should entertain any question but that the purposes for which the undertaking was authorized would be entirely fulfilled under this offer—that very one clause there indicates that—and that the guaranties will be wholly adequate. So assuming, I now address myself to the consideration of the proposal of Mr. Ford.

In the first place, he offers to purchase nitrate plant No. 1, nitrate plant No. 2, the Waco quarry, and transmission line—of course, that has been sold since.

Mr. BANKHEAD. No; not the Waco quarry.

Mr. MADDEN. Not the Waco quarry, but the power plant; the transmission line and the Gorgas Warrior power plant, Mr. Bankhead. That has been sold, and my bill proposes to build a new plant at a cost not to exceed what we received for the other, and to build a transmission line, and proposes that this plant shall be erected at locks and dams Nos. 15, 16, and 17, where the Government of the United States owns the land, and the reason of the erection of it at that point is the coal fields are down there. There is no reason why it should be erected at that point except for the fact the coal fields are there, and it costs about $2,200 a day for freight on coal up to where the dams are, and all plants requiring the use of coal should be established down near the coal fields so as to save that $2,200 a day. That is what Ford would do, probably, if he gets this. There would be many things he would do that anybody else would do, if he had any business sense at all, which the Government won't do. I have already told you of the contract obligations. We have invested in these four units $85,423,078, but, as I have shown you, they are practically valueless unless we sink another $84,000,000 into the entire venture, or $109,000,000 if, under Government control, it should be decided to build Dam No. 3; and I do not think there is any question that this dam must not only be built but an auxiliary water flow provided besides if sufficient power is to be generated at all times to make it possible to meet the demand for fertilizer. Now, there is only about 100,000 horsepower that can be generated by water there—primary power, I mean. It can be made into five or six hundred thousand horsepower, but it means the construction of reservoirs and the expenditure of a vast amount of money in the back country to hold the water to meet the needs of slack water periods. Of course, the Government is not going to do that; the Government will just run along in a slipshod way, and we will be making eloquent speeches on the floor of the House, telling what a wonderful thing it is, whereas, as a matter of fact, it is not anything. If you turn it over to Ford, under a contract you can compel him to do these things; but whether you compel him or not, he will do them for his own preservation, because water power is not of any use if it does not flow, and if it only flows for four months of the year it is not of any use, because you have to supplement your water power then by steam, which costs about six times as much as water power flowing over the dams, and you are not getting the results. So that the man who has any wisdom and has money enough, accumulated as a result of that wisdom, which he wants to invest, will exercise the wisdom in his investment to develop every pound of resources that can be developed as a result of his investment.

Now, he will incur no immediate expense on account of the dam—Ford would not.

Mr. WAINWRIGHT. The Government puts up all of the money to build the dams.

Mr. MADDEN. Yes; to build the dams.

Mr. WAINWRIGHT. It puts up $50,000,000 to build the dam.

Mr. MADDEN. Yes.

Mr. WAINWRIGHT. In addition to the $5,000,000 he pays for the plant, what capital investment would Ford make?

Mr. MADDEN. I am just about to come to that. He will incur no immediate expense on account of the dams, but he will have to put out $59,000,000 to get the plants on a going basis, the same as the Government would have to do. That will be the first thing he will have to do—put out $59,000,000, the same as the Government will have to do. I have just described what the Government would have to do. So he is not getting such a wonderful bargain after all. Now he agrees to pay $5,000,000 for what we have spent $85,000,000, part of which we sold since for $3,400,000, and my proposal now is that he be given a credit, for the amount that we received, for the construction of a new plant similar to the one we sold, so that he would be in the same position as he would have been if we had not sold it.

Mr. WAINWRIGHT. We did not get the $3,400,000 for something that cost the Government $89,000,000.

Mr. MADDEN. I am talking about the $89,000,000 expended on the thing that this had to be operated in connection with.

Mr. WAINWRIGHT. I understood you to say the $3,400,000 only referred to the Gorgas plant, the cost of which was less than $5,000,000.

Mr. MADDEN. That is true. That disposes of everything but the dams. To June 30, 1922, we had invested in the Wilson Dam, including maintenance costs, $16,559,337. Under Mr. Ford's offer we must commit ourselves to a further outlay for the Wilson Dam and Dam No. 3 of $50,000,000. Let us see what his proposition is as to these. After their completion, which he is to do, he agrees to lease the water power derived therefrom for a period of 100 years on the following terms:

First, to maintain at his own expense the power houses and all equipment incident thereto, returning the same at the end of the lease unimpaired.

Second, to pay $35,000 annually for repairs, maintenance, and operation of Dam No. 2, its gates and locks, and $20,000 per annum for repairs, maintenance, and operation of Dam No. 3, its gates and locks, during the life of the lease. This sum of $55,000 has been estimated as sufficient for these purposes.

Third, to pay $200,000 annually as rental for the first six years on Dam No. 2, and thereafter during the life of the lease 4 per cent interest on the sum necessary to be expended for the completion of said dam, power house, and machinery, and for completing the acquiring of lands and flowage rights.

Fourth, to pay as rental for Dam No. 3, $160,000 per annum for the first three years and thereafter 4 per cent interest on the entire cost of constructing said dam, power house, and machinery, including cost of lands and flowage rights.

Fifth, to establish a sinking fund by the semiannual payment of $23,373, which sum, if compounded at 4 per cent semiannually, will amount to $49,701,935 at the end of the lease, and if compounded at 4¼ per cent interest will amount at the end of the lease to $58,570,003. It has been claimed—and it is probably true—that this fund could be handled by the Federal reserve banks to accomplish this result practically without expense.

Sixth, to furnish free 200 horsepower for operating locks at Dam No. 2 and 100 horsepower for operating locks at Dam No. 3. This would save the Government the cost of operating the locks on the Muscle Shoals Canal, estimated to range from $35,000 to $85,000 per annum.

When you analyze it, that does not seem like a bad proposition at all. For a period of 100 years the Government is freed of any expense in connection with these dams, locks, and power houses and machinery; it receives a fairly substantial return on approximately two-thirds of its investment in the dam and, in the end, has repaid to it practically the whole of such investment. And, gentlemen, remember that throughout that entire period the farmers of the United States will have been getting their fertilizer and the Government will have had at its disposal a plant fully and modernly equipped and ready to produce explosives and other war materials. The Government will have been freed from all the hazards attendant upon such a vast enterprise; it will have saved

the expense of research and experimentation, and the burden will have fallen upon others to keep these plants equipped to conform with the march of progress.

Now, it is not my purpose to urge you to align yourselves on one side or the other of this proposition. I have just striven to give you the plain, unvarnished facts as I have found them, so that you might be the better equipped to decide the question and reach a solution on terms that will meet the approval of the American people.

I think I heard my friend from New York say, just as I came in, that new proposals had been made; that other proposals were pending. I am not here to argue about proposals. You said that opportunity should be given for further proposals.

Mr. WAINWRIGHT. Yes.

Mr. MADDEN. To show just what has been done by the Government to get proposals, I think, will be of interest. The question of disposing of the Muscle Shoals project to private interests is not a new one. As far back as the summer of 1919 the nitrate director of the War Department, Mr. A. G. Glasgow, endeavored to interest private capital in the venture. The success which attended his efforts is well summarized by the statement made by the acting director, Mr. George J. Roberts, before the Senate Committee on Agriculture and Forestry, in March, 1920:

"The question naturally arises," said Mr. Roberts, "Why does not private industry undertake the operation of these plants? I shall not attempt to give what is in the minds of those who are most interested in the production of nitrates in this country. All that I can state is that months' of time were expended attempting to get the fertilizer industry interested in taking over and operating the Government plants. The presidents of all the larger fertilizer companies in the United States were seen and the matter fully discussed with them, and they were asked if they would undertake the operation of these plants if they were to pay no rental to the Government until they had received 9 per cent on their working capital, and after that the profit would be divided between them and the Government. A part of the agreement was that the United States would complete the plant so as to provide storage and bagging facilities, a sulphate of ammonia plant, and all the work outlined in Mr. Glasgow's letter of October 22. But they could not be brought to the point of making a formal offer. An effort was also made to get certain financiers in New York to undertake to form a company to operate these plants. Scant consideration wgs given to the scheme and no investigation undertzken. An appeal was likewuse made to the coke-oven interests, with the same result. There seems to be a decided antipathy of capital to engage in any partnership arrangement with the Government."

Now, after we have received one proposal, which has all of the earmarks of success, others have come and thrown out a smoke screen. They want to get control of the water power to be developed at this plant; they want to leave the fertilizer unexplored; they want to leave the farmer to struggle along as best he can, without the fertilizer and, if he wants any, to send down to Chile and get it. I was told by one of the men heavily interested in Chilean nitrates the other day—I was talking to him about this plant, and I told him I thought we would be able to produce nitrates and sell to the farmer much more economically than they have ever purchased them before. He said, "If that shall prove to be the case, we will cut the price of Chilean nitrates in two—in three, if necessary." I said, "God speed the day." If we do not do anything else by the contract we make with Mr. Ford, except to get the price of Chilean nitrates cut in two, three, or four, we have accomplished something toward the development of agricultural happiness and prosperity throughout the land.

Mr. JAMES. We meet at 12 o'clock to-day. Mr. Garrett has promised to talk to us, and before we question Mr. Madden, I suggest that we hear from Mr. Garrett.

The CHAIRMAN. We will ask our questions of Mr. Madden afterwards and we will be glad to hear you now, Mr. Garrett.

STATEMENT OF HON. FINIS J. GARRETT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TENNESSEE.

Mr. GARRETT. Mr. Chairman, I thank you and the gentlemen of the committee for this courtesy. There really does not seem to me to be any necessity for a statement from me, after the very lucid presentation that has been made by the gentleman from Illinois, and my statement will be very brief.

I simply wish, if I can, to reinforce the argument made by the gentleman from Illinois of the necessity of reaching a conclusion upon this matter and of reaching

a practical conclusion that will be for the benefit of the whole people of this country, in connection with the disposition of a property that belongs to the whole people. Of course, not only the statements made by Mr. Madden render it unnecessary for me to say much, but the long study that has been given to this question by the members of this committee. The great majority of the members of this committee have been wrestling with this question now for some years. What is known as the Ford offer has been, I think, a public offer since May, 1921, if I am not mistaken. This committee at the last Congress went into it very thoroughly and a measure was reported. A condition has arisen since that time, to wit, the sale of the Gorgas plant, so called, which, in order to bring about an acceptable contract, will necessitate some amendments of the measure that was reported favoring the acceptance of the Ford offer at the last Congress.

I think it is well—and I am moved to say this particularly by the remarks of the gentleman from New York, made before that statement of Mr. Madden—to bear in mind that there were two basic elements that entered into the initiation of this work at Muscle Shoals. One was to manufacture nitrates for war purposes; but equally as much, although not so much in the public eye at that time because we were entering war, it was the purpose that it should be utilized for the manufacture of nitrates or fertilizer in times of peace. I am going to venture, in proof of that statement, just to read a sentence from the famous section 124 of the national defense act, passed following our entrance into the war:

"The President of the United States is authorized and empowered to make, or cause to be made, such investigation as in his judgment is necessary to determine the best, the cheapest, and most available means for the production of nitrates and other products for munitions of war, and useful in the manufacture of fertilizer and other useful products by water power," etc.

Singularly enough, that element which is indispensable in creating the instrumentalities of destruction in modern warfare, to wit, nitrates, is also an indispensable element in the production of those things by which men live. And so the necessity for the development of this great plant and the putting of it into operation is not predicated at all upon war alone, but is predicated as well upon the demands of peace.

I repeat the proposition known as the Ford proposition has been before the Congress and before the public for more than two years, and anybody in the United States, who cares to do so, has had the opportunity of giving it the closest analysis and scrutiny. I do not think I overstate the case when I say, if popular sentiment is to be respected and popular wish to be recorded in the matter as to the disposition that is to be made of public property, the overwhelming sentiment of this country, not alone in the section in which this property happens to be located, but throughout the entire country, the overwhelming sentiment favors the acceptance of the Ford proposition.

I repeat it is wholly unnecessary for me to go into figures, because Mr. Madden has stated, I think, all that is essential on that line. So I merely appear here, in my representative capacity, to attempt to emphasize before the committee what I regard is the very great importance of early action upon this proposition, and respectfully to appeal to you gentlemen that you give the House an opportunity, at the very earliest possible date, of voting upon the acceptance of the offer of Mr. Ford.

Mr. WAINWRIGHT. May I ask you just one question?

Mr. GARRETT. Surely.

Mr. WAINWRIGHT. Do you really think that we have exhausted the possibilities of getting a better offer than Mr. Ford's—that the possibility has been exhausted, in view of the history of this whole proposition.

Mr. GARRETT. There has been no offer made up to date, that I know of, that involves the manufacture of nitrates by any private concern whatever. I share with the majority of this House, I think—I mean with the majority of the Members of this House, the very great majority—the opposition toward Government operation which they have, if it be possible to do it by any other plan. And, so far as I am aware, the only proposition in all these years that has ever been made before the committee that met with any kind of consideration at all, which took care of all of the phases, water power, nitrates, and everything, has been the Ford proposition. Therefore, since the opportunity has been open for an offer during all these years and no one has come, it would seem to me that the committee would be amply justified in assuming that none is to come, and that therefore we might have the opportunity of acting.

Mr. WAINWRIGHT. Do you think there is really any serious objection to making another effort to get a better offer, and would any interest be really harmed by making such an effort for a limited time, within which offers might be made.

Mr. GARRETT. I think for five years the plant upon which all of this vast sum has been expended has been standing idle when it might, some years ago at least, have been in operation and the people of the United States deriving the benefits from it, and I think that further delay would be harmful. It would take some time for this plant to get into operation; if the Ford proposition were to be accepted to-morrow it would take months before it could get into operation. If the committee delays in an effort to go out and seek other bids, when are we ever to begin to realize upon this great Government investment, in the manner it was intended we should realize when this organic act, which was referred to a few moments ago, was passed.

Mr. MCSWAIN. Where would we have to stop seeking? There are 105,000,000 people and they have had all the chance of coming to us that Mr. Ford or anybody else has had.

Mr. SPEAKS. Is it not also true that, during all the years since this has been one of the paramount questions before Congress and the country, Mr. Ford has made the only proposition, and is it not also true that if he should be the only agency which would make a proposition, certain interests are so intensely opposed to any success which Mr. Ford would make that they might be expected to impede a possibility of bringing about a contract?

Mr. GARRETT. I desired, of course, to keep away from controversial questions, in so far as it was possible; but I have no doubt that the statement of the gentleman is correct—absolutely and unquestionably correct.

Mr. HILL of Alabama. Is it not a fact also, Mr. Garrett, that it has cost the United States Government some $7,974,000 by not using that plant—by letting it lie there, idle?

Mr. GARRETT. You mean on the upkeep?

Mr. HILL of Alabama. Yes; the upkeep.

Mr. GARRETT. And the interest on the investment?

Mr. HILL of Alabama. And the cost of maintenance and loss of interest?

Mr. GARRETT. I am not familiar with the figures, but doubtless you have them correct. I know we appropriate each year large sums to keep it in a stand-by condition. This is a great plant; many of you gentlemen have seen it—I had the pleasure of going through it a few years ago—and it has necessarily cost a vast sum to keep that plant in a stand-by condition. And even with the best of care, it must be deteriorating as the days go by.

Mr. Chairman, I advise the committee that the hour of 12 has arrived. I thank you very much, indeed, for this courtesy, and if there are any questions I should be glad to answer them. I shall be glad at the earliest opportunity, if it is desired to ask me any questions, to return to the committee; but I feel it is very necessary for me to go to the floor now.

Mr. MCKENZIE. All right.

Mr. MCKENZIE (presiding). Now, Mr. Madden, the chairman suggested we proceed in order in asking the questions, and the order is that we call on the members of the committee in the order of seniority, and by doing that we can go around very rapidly. I do not think there are very many questions to be asked. I desire to ask one or two questions myself, to begin with, and then we will proceed around the table, as long as we have the time.

It was your purpose, as I understand it, Mr. Madden, in introducing your bill, to suggest the amendments in sections 19 and 20 to the original committee bill that was passed in the last session.

Mr. MADDEN. Your bill; yes.

Mr. MCKENZIE. And your purpose in doing that, as I understand, is to give to the Muscle Shoals plant the auxiliary power that Mr. Ford had in mind when bidding for the Gorgas-Warrior steam plant?

Mr. MADDEN. That was it, yes, sir—to put it in the same position that it was before that was sold.

Mr. MCKENZIE. It is your view, then, in order to operate the Muscle Shoals plant to an advantage and be able to manufacture fertilizer at a price at which it can be sold to the farmer in competition with other concerns, that it is necessary at all times to have this auxiliary power.

Mr. MADDEN. It will be necessary until—that may be a long time in the future—we can have reservoirs sufficient to impound all of the water so as to operate the water power plant at all times.

Mr. MCKENZIE. That is your idea and that is your purpose in offering this amendment, as I understand it.

Mr. MADDEN. Yes, sir.

Mr. MCKENZIE. And you limit the amount of money that can be expended for that to the amount received for the Gorgas-Warrior plant.

Mr. MADDEN. $3,400,000, which was the amount received.

Mr. MCKENZIE. Is it not also true, in offering this amendment to the original bill, you had in mind that the power of eminent domain would probably have to be exercised in order to procure the right of way or the land necessary for this construction?

Mr. MADDEN. For the power line.

Mr. MCKENZIE. On the Warrior River, and a private corporation could not do it?

Mr. MADDEN. My thought was we could build the plant on property now owned by the Government, locks and dams Nos. 15, 16, and 17, but we would have to have the right of eminent domain to secure the power line.

Mr. MCKENZIE. I understand. Your thought was there might be some question whether a private company would have that power?

Mr. MADDEN. Yes, sir.

Mr. HULL. Mr. Madden, I think you and I are in practical agreement. I think nobody, at least I am not, is considering Government operation. I do not know anybody on the committee who is figuring on Government operation, and I think that we all agree that there are two or three elements in this: First, national defense and, next, the conservation of the soil by the manufacture of fertilizer. These are not antagonistic, however, and both must be in any offer that is accepted?

Mr. MADDEN. Oh, yes.

Mr. HULL. Now, the question I want to ask you is, those things all being equal, and we having two or three offers before us, have we the right or should we accept the one that offers the best to the Government in the return of dollars, or should we play favorites?

Mr. MADDEN. It is not a question of dollars; it is a question——

Mr. HULL. All things being equal, I said.

Mr. MADDEN. It is a question of what, in the long run, will be of the greatest advantage to the people of the United States.

Mr. HULL. But if one corporation offers one thing and another corporation offers identically the same thing, only one offers the more money, which one should we accept?

Mr. MADDEN. Well, that would be a matter for the committee to decide and for the Congress to exercise its wisdom on, and it would be a matter of judgment as to what might be thought would be the most advantageous in the long run, I assume. It would not be a question of the immediate dollars. If it were, I would not be in favor of Ford's proposition, because he is not offering many dollars.

Mr. HULL. But if we could get the same offer from somebody else, have we the right——

Mr. MADDEN. If they are equally responsible, I do not know of any reason why they should not be given consideration.

Mr. HULL. That is all.

Mr. MADDEN. You could not get away from that, of course.

Mr. HULL. That is all there is to it absolutely.

Mr. JAMES. If a corporation like the Alabama Power Co., every time it had a chance to do it, did it—put in an offer on about the same basis as Mr. Ford—I would say we only had one offer and, as far as this committee knows, there is no offer except Mr. Ford's.

Mr. HULL. Of course, some of us might not agree with that statement.

Mr. JAMES. So far as I know the only offer we have before us that the committee has not tabled is the Ford offer. I would like to hear your view of a joint congressional committee.

Mr. MADDEN. I think that would be absurd, impracticable, unjustifiable. What is this committee and the committee of the Military Affairs of the Senate but a joint congressional committee elected by the people.

Mr. JAMES. And this committee has spent two years on it and introduced a bill in Congress.

Mr. MADDEN. Yes.

Mr. HILL of Maryland. There is just one point I want to make clear in the record. H. R. 518, introduced by Mr. McKenzie on December 5, and H. R. 8, introduced by Mr. Madden on December 5, are identical with the exception that you have added section 19 in your bill, to take care of the replacements of the

auxiliary Gorgas plant, and section 20, which makes it absolutely clear that the heirs, representatives, and personal assigns of Mr. Ford are bound. Is that correct?

Mr. MADDEN. Except that I have modified the title of the bill and added to it.

Mr. HILL of Maryland. But the bill itself is substantially the same.

Mr. MADDEN. Yes.

Mr. QUIN. Mr. Madden, in order for the proposition made by Mr. Ford, through his agents, to be acted upon, which is the only offer as the hearings indicate, all that would be necessary to be done to get it before the committee for a vote is simply to accept your bill, or to put that part of it about erecting the steam plant in Mr. McKenzie's bill by an amendment—that is all that is necessary?

Mr. MADDEN. I think if that should be done, it would be very acceptable to the Ford interests and you would be able to get legislation, if we all agreed on that proposition, and get a contract.

Mr. QUIN. And if this committee is really going to do business, that is all it has to do, is it not? [Laughter.]

Mr. WRIGHT. You spoke about this matter of the offer going to a committee or some special commission to receive bids or to make contracts. Do you overlook the fact that as early as 1921, after work had been suspended at Muscle Shoals, and Secretary Weeks was installed in office, that he directed the Chief of Engineers, Colonel Beach, to advertise, so to speak—to give publicity to the fact that the Government desired to dispose of this property?

Mr. MADDEN. He did.

Mr. WRIGHT. And that this has been open to receive offers since early in 1921?

Mr. MADDEN. Yes; Mr. Beach did, under the direction of the Secretary of War, advertise and he said, as the result of his advertisement, some bids were received, but out of all of the bids there was only one bid worthy of consideration, and that was Ford's.

Mr. WRIGHT. Only one that covered the whole scope of the enterprise.

Mr. MADDEN. Yes; that is what he said.

Mr. WRIGHT. There were numerous bids, several bids, all of which were thoroughly thrashed out in this committee.

Mr. MADDEN. And Mr. Beach said there was only one bid worthy of consideration.

Mr. WRIGHT. Yes. So this is not a new question about disposing of Muscle Shoals.

Mr. MADDEN. Oh, absolutely no. Mr. Chairman, if the committee is through with me, I will ask to be excused.

Mr. MCKENZIE. Now, gentlemen, if there are any further questions you would like to ask Mr. Madden, I am sure he would be willing to come back. I think all of these bills should go into the record, and if there are any organizations or individuals who desire to submit offers for the consideration of this committee, they had better get them prepared and submit them, because I am certain it is the intention of the committee to proceed with this matter to a final end and report some proposition to the House. So I would suggest to any gentlemen present who desire to submit any offers that they get them in within the next few days, so that we will have them before us for consideration.

(The committee thereupon adjourned to meet Thursday morning, January 17, 1924, at 10 o'clock a. m.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Thursday, January 17, 1924.

The committee met at 10 o'clock a. m., Hon. Julius Kahn (chairman) presiding.

The CHAIRMAN. Now, gentlemen, we will proceed with the hearing on Muscle Shoals. Doctor Cottrell is here, and the committee will be very glad to hear from him.

STATEMENT OF MR. F. G. COTTRELL, DIRECTOR FIXED NITROGEN RESEARCH LABORATORY, DEPARTMENT OF AGRICULTURE.

Mr. COTTRELL. I came down at the request of the Secretary of Agriculture to furnish information and answer any question that might come up regarding the technical aspects of nitrogen fixation. I am director of the fixed nitrogen research laboratory in the Department of Agriculture, having charge of general investigations in this technical field. Of course, we have to study agricultural problems

from the economic standpoint to some extent as well, but we have no problem particularly to present in the way of legislation, and I am merely here to answer questions.

The CHAIRMAN. Do you want to make any statement at all?

Mr. COTTRELL. No; I should hardly think so at this time.

Mr. MCKENZIE. May I ask one question? We understood that the bill introduced by Congressman Dickinson of Iowa met with the approval, to some extent, of the Department of Agriculture and Congressman Dickinson asked me if it would not be possible to have a hearing so as to permit some of you gentlemen to come before the committee and, of course, there was no objection to that and we were anxious to hear you, or any one else representing the department, as to whether they have any particular idea on the advantages of the Dickinson bill over the Ford proposition, or any other offer that might be before the committee.

Mr. COTTRELL. I suppose in a way I have had a certain responsibility for getting something started in that direction, though not for actual details of the Dickinson bill itself. As a matter of analysis, I felt that a statement from the Power Commission's experts would greatly clear the discussion. I understood they were opposed to certain features of the Ford offer. I talked with Mr. Merrill about it and urged him to try to outline how he thought the Ford offer could be modified, with the minimum of changes, in order to meet their ideas.

The CHAIRMAN. I believe Mr. Merrill is on his way up here now.

Mr. COTTRELL. It is my feeling that it would be very much better for Mr. Merrill to first present the matter, because he represents those who have worked out the foundation for the Dickinson bill. The Secretary of Agriculture was very much interested in trying to get an agreement between all parties concerned in order to insure that the fertilizer program should go forward.

Mr. MCKENZIE. Do you have any objections to the Ford proposal?

Mr. COTTRELL. No; I am an entirely neutral party on all those matters of legislative policy, because our subject is purely the matter of the technology of the subject.

Mr. MCKENZIE. One of the things which we are deeply interested in is the manufacture or production of fertilizer for the use of the agriculturists of the country.

Mr. COTTRELL. We are very anxious that in the development of this matter, of course, the fertilizer side of it shall not be neglected. We are interested to see in whatever legislation is passed that the fertilizer situation shall be given all the possible help it can, and it was purely in that direction that I urged Mr. Merrill and his staff to try to define closely what changes they felt were necessary in the Ford bill, because I rather sensed that there was serious opposition here in Washington and elsewhere of a really thoughtful character to the Ford proposition on account of its conflict with the Federal water power act, which it might be possible to eliminate without destroying the attractiveness of the offer to Mr. Ford.

We are very much interested in one thing, and that is to be sure that the fundamental necessity for research in this field is really understood. No matter what comes. I think it would be unfortunate if the Government were to give up the idea that it needed to do fundamental research in this matter of nitrogen fixation, no matter who may take over the particular plants here under discussion, because the entire nitrogen industry is a matter of very much greater magnitude and diversity than even the Muscle Sohals project in itself.

The CHAIRMAN. This committee, in taking up the thing originally, felt that there were three things that they would be called upon to investigate, and it was decided that the company shall at all times be subject to the absolute right and control of the Government, for the production of nitrates for use in the manufacture of munitions of war, and that nitrate plant No. 2 must be kept available, therefore, by the purchasers, grantees, or users of the property. This committee has gone on record that they favor the use of this property for the manufacture of nitrates, so that there is no question about that proposition.

Mr. MCKENZIE. Of course, you understand that the Water Power Commission is the creature of a congressional act; that it is created by Congress?

Mr. COTTRELL. Yes, sir.

Mr. MCKENZIE. You also understand (and I think it is generally admitted) that the Ford proposal is not only unique in character, but it does establish a precedent outside of any legislation heretofore enacted, and you do not criticize that point, as I understand it?

Mr. COTTRELL. I am criticising none of it.

Mr. McKENZIE. You feel that Congress has a right to advance further into that field of legislation, if it is deemed wise so to do?

Mr. COTTRELL. Yes, sir.

Mr. McKENZIE. Now, what I want to ask you is if you have any criticism to offer to the Ford proposition, so far as the proposed manufacture of fertilizer is concerned?

Mr. COTTRELL. No. I think the more the merrier in that; that is, the more fertilizer we can have manufactured, if they are willing to take it over, the better.

Mr. McKENZIE. Do you think there are any weak spots in that proposal?

Mr. COTTRELL. No, not within the technical field of nitrogen fixation on which I am here to-day specifically to speak. It is hardly definite enough to criticize, as it does not go into the technical side of the questions, but that is a matter which would come later, and would be a matter entirely for Mr. Ford to work out with his technical staff.

I have simply had in mind such things as this; I found there seemed to be very strong opposition right in Congress itself over the apparent conflict of some of the provisions of this bill with the Federal water power act, yet it was not definite enough so that I could put my finger on it in the bill and say just what were the things on which the conflicts rest, and I thought it would be well for the Federal Power Commission to define these things. Take the 100-year provision, for example. I understood from what seemed to me a pretty reliable source, that when the project was first discussed with Mr. Ford, he actually opposed the 100-year lease and that it was only after further discussion it was included. So my thought was that if Mr. Ford and the Federal Power Commission could actually get together much needless friction might be eliminated, and the chances of getting through a thoroughly constructive and mutually satisfactory measure greatly enhanced.

This is of course quite in line with the suggestion in the President's message that a committee be appointed, with the power to negotiate on these matters, and see whether some of the outstanding differences could not be negotiated away, and I think it was in that spirit that Mr. Merrill and his associates finally came to draft what later became the Dickinson bill. When we started, it was not with any idea that it should go in as a bill, but the idea was simply to draft an analysis of the situation, placing the Ford offer on one side and, in a parallel column, to set forth the Power Commission's suggestions. The analysis in this form appears in the appendix of the Congressional Record for January 8. I think the offer from the nitrate standpoint is a good one, but it was to have the matter also satisfactory to the Power Commission from a power standpoint as well that this discussion was initiated. That is a matter, however, about which Mr. Merrill can tell you much better than I, and I see that he has just come in.

It was following these discussions that the matter finally came to Mr. Dickinson and he suggested that it be put in the form of a bill. So my interest in the bill is more the matter of clearing up the points at issue, so as to give us the chance to get something really done, which everybody wants, if we can eliminate the unnecessary points of discussion between the different sides.

I do not hold a brief for either side, all my interest in it is to see if we can not eliminate unnecessary objections on each side and get together, and it was simply with that in mind I suggested to Mr. Merrill and the secretary that something be sketched as a basis for getting together. As I said before, I think Mr. Merrill can discuss that with you much better than I.

The CHAIRMAN. Mr. Merrill, are you ready to be heard?

Mr. MERRILL. Yes, I am ready to go on.

STATEMENT OF MR. O. C. MERRILL, EXECUTIVE SECRETARY FEDERAL POWER COMMISSION.

The CHAIRMAN. Now, Mr. Merrill, you are the Executive Secretary of the Federal Power Commission?

Mr. MERRILL. Yes, sir.

The CHAIRMAN. Will you kindly make any statement you desire regarding this matter to the members of the committee?

Mr. MERRILL. Doctor Cottrell has been speaking somewhat about this bill, I think. Congressman Dickinson is away from town, and his office called me up just before this hearing started the other day and asked me if I would come here and explain the provisions of his bill, or answer any questions you might have in respect to it. I misunderstood the hour of meeting, Mr. Chairman; I thought it was to be at 10.30.

The CHAIRMAN. We have been meeting at 10.30 heretofore, but we decided to meet a little earlier.

Mr. MERRILL. I do not know just how much Doctor Cottrell has said to you about this draft, but he did explain it was simply drawn as a typical form of bill to obviate some of the criticisms that have been presented heretofore to the original Ford offer and, on the other hand, a scheme which, in our judgment, was as favorable, if not more favorable, from the standpoint of Mr. Ford, if he accepted the offer and if he intended to apply the energy created at Muscle Shoals to the production of fertilizer.

There has been printed in an appendix to the Congressional Record for the 8th of January, I believe, a parallel comparison of the Dickinson bill and the original Ford offer, which indicates the changes that have been made and I will, briefly, discuss certain of those changes and indicate the reasons why they have been proposed.

This bill was drafted not only as a suggested substitute for the Ford offer, but also for the purpose of indicating what we believe, in general, is the relation that should obtain between power production and nitrate production at Muscle Shoals, or in similar circumstances elsewhere. It is assumed that the Government is willing to make concessions with respect to fertilizer production and to the maintenance of its nitrate properties at Muscle Shoals, which it would not be willing to make for any other purposes, and that it is neither necessary nor desirable that such concessions be made with respect to so much of the power as may be developed and used or sold for general commercial purposes. The Dickinson bill, therefore, indicates a method by which this relation can be maintained and by which the compensation paid to the Government may decrease as the amount of energy used in the production of nitrates increases. The bill furthermore proposes to dispose of the properties only by lease, to place the lessee of the properties under the jurisdiction of the Federal Water Power act with respect to energy sold for commercial purposes, and to have the terms of the leasehold, in general, in conformity with the provisions of that act.

With respect to specific changes—

First, the opening paragraphs of the offer remain unchanged. There has been a modification in paragraph 2 by putting it into the following form:

"That the United States shall complete Dam No. 2, its locks, power house, and all necessary equipment, shall progressively install the hydroelectric equipment in said power house up to a capacity of approximately 600,000 horsepower, and shall acquire all necessary lands and flowage rights," etc.

The Ford offer provided for construction by the Ford Co., or the company created under that offer. I assume, however, that since the United States has gone so far in its construction (the Wilson Dam is expected to be completed by July of next year) that it would be advisable and desirable that the work be completed under the organization now there. That is the only change that is made in that paragraph.

Mr. MCKENZIE. That changes the time limit to 50 years.

Mr. MERRILL. Yes. It is not in that paragraph, I think, but the time limit has been changed.

Mr. MCKENZIE. That is in section 3?

Mr. MERRILL. Yes, sir; in section 3 the change of the time limit is made.

Mr. MCKENZIE. Well, that is in connection with the statement you have been making, in connection with the construction, etc.?

Mr. MERRILL. No; I said that the construction was to have been handled by the company created by Ford in his offer.

Mr. MCKENZIE. Yes.

Mr. MERRILL. The amendment in here is that the work shall continue until it is completed, at the Wilson Dam, by the United States.

Mr. MCKENZIE. That is in section 3.

Mr. MERRILL. No; No. 2. Now perhaps the major changes in the amendment are a change of the time limit from 100 to 50 years, the exclusion of Dam No. 3, and the proposal for a lease instead of a sale of the nitrates properties at Sheffield.

Mr. MCKENZIE. Will it disturb you if I ask you a question right there?

Mr. MERRILL. No, not at all.

Mr. MCKENZIE. In order to get it into the hearing, why do you recommend 50 years rather than 100 years?

Mr. MERRILL. Largely because Congress has, itself, in the Federal water power act, established a policy for dealing with its grants of water power rights and the disposition of properties of the United States for water power purposes, and it has limited it to 50 years. All of those people (and there are scores of

them) who have taken out licenses under the Federal water power act and have expended their own money in the construction, have their license grants limited to 50 years. Here is a case where it is proposed that the United States shall put in every dollar of the invesstment and grant a license period of 100 years. If there is any reason for granting a license period of 100 years, it should be to those people whose own money constructs the plants and not to those who get a plant constructed at the expense of the United States.

Mr. McKENZIE. May I ask you this, Mr. Merrill, in order just to get your view, and I take it you have studied these different propositions: Do you hold there is anything analogous between an ordinary power proposition and the Ford proposition?

Mr. MERRILL. Well, there is an analogy so far as the power end of it is concerned.

Mr. McKENZIE. I mean taking the whole proposition, the Ford proposition in its entirety, and then thinking of a purely water-power proposition under the water-power act. Do you consider they are analogous at all?

Mr. MERRILL. Why, I do not see why not. The assumption is, I presume, that here is an industry to be established, the nitrate industry, which will be dependent upon the power developed from the power project. Therefore, it is necessary that the available power for that industry shall be assured, eventually, not only for 50 years but 100 years, or 200 years, perhaps. But that is what all industries have to have, no matter whether the nitrate industry or any other industry, whether the steam railroads, or whether domestic establishments, or manufacturing plants—they have to have power indefinitely in the future generated at these very projects in which we limit our license period to 50 years. In both instances, under the Federal water power act and under this act (the Dickinson bill) there is a provision for the extension of the lease at its termination and in this particular case with express preference rights to the Ford Co., if it accepts the offer, over anybody else.

Mr. McKENZIE. May I ask you this question: Is it not true that under the water-power act in the consideration from the grantees, or lessees, or however they may be termed in the contract, running from them to the Government, there is a certain license fee or percentage or something of that sort based on the cost of the proposition, for a term of 50 years, and that is the only consideration that there is between the Government and the parties operating the water-power site, for the water power developed at a certain particular site?

Mr. MERRILL. The only financial consideration.

Mr. McKENZIE. Yes; now, is it not the purpose, in putting the limitation in there of 50 years, that it is based on the theory perhaps that at the expiration of 50 years it will be more advantageous to the Government to make a new contract and increase the consideration coming from the operators of the water power to the Government?

Mr. MERRILL. You have an opportunity when the 50 years are up to establish a new deal; yes.

Mr. McKENZIE. Now, the Ford proposition, on the other hand, is not purely a water-power proposition. It has two other very definite considerations running to the Government. One of them is that it will, for the whole term of this lease period, maintain this plant for the manufacture of nitrates. If it is destroyed, it will be rebuilt and it will be kept in perfect condition so that the Government may take it over at any time. The other proposition is that for the period of 100 years they will engage in the manufacture of fertilizer, in time of peace, for use of the farmer. So that, to my mind, I can not see any analogy between the two propositions and, it would seem to me (and I want your opinion on it), that the longer the term of this lease the more advantageous to the Government, coupled with one other proposition which I have in mind, and that is there is a general tendency all over the country to develop water power. If that is true, it strikes me that in 50 years from now you can lease water power at a lower rate than you can to-day. If that were true, then the lessees would say, "I want my lease to terminate, so that I can make better terms with the Government." Now, what do you think of those things?

Mr. GARRETT. And the further consideration, if you will add, that this contract for 100 years limits the profits of this concern to 8 per cent and that it shall at no time make more than 8 per cent?

Mr. McKENZIE. That goes to the farmers' end of it.

Mr. GARRETT. Yes.

Mr. MERRILL. But you do not want to overlook the fact, in dealing with applicants under the Federal water power act, that power utilities as such, (90

per cent of our dealings are with public utilities) are doing just as essential a public service and as necessary a public service as is the manufacturer of nitrates for the farmers. And not only in this case do you limit to 8 per cent the profits which may be secured from the nitrate operations, but we do the same with those who operate under the Federal Water Power Act and under the utilities statutes of the various States. The earnings of public utilities corporations who take out their licenses under the Federal water power act are equally limited, and to the same per cent, in general.

Mr. McSwain. Of course, he will be limited, too, by the same public utilities provisions.

Mr. Merrill. He will if he goes into the public utility business, but not otherwise. Also, it may be equally as desirable, if this deal goes through, to examine the conditions of the deal 50 years from now as it is when you are dealing with some one who is developing some other type of public service, because we are dealing, in both instances, with public service agencies; one selling energy for general public use, the other one, under the provisions of this bill, but not in general, rendering a public service by assuming the obligation to manufacture a certain amount of nitrates and to dispose of it under certain conditions—in fact, a governmental restriction, if we may call it so, upon what hitherto has been considered private industry, bringing it, for the first time, within this other group of public service corporations who, in general, are already restricted not only under the Federal water power act but under State statutes as well. And if 50 years is long enough in the one case, I see no reason why it is not long enough in the other, from the financial viewpoint; and, if it is desirable to review the deal with the public utility 50 years from now, it may equally be in the public interest to review a deal made with a private corporation engaged, in part at least, in the manufacture of a commodity and having subjected the manufacture of that commodity to certain regulations as prescribed in this legislation. I can not see where they do not stand flatly on the same basis.

Another change that has been made in here is to eliminate Dam No. 3 from the present construction program. The amount of energy that can be developed at Dam No. 2, with the 60,000-kilowatt steam unit at the Sheffield plant, is somewhere between one and a quarter and one and three-quarter billion kilowatt hours, probably one and a half billion of kilowatt hours of usable energy with the eight units installed, and more with the ultimate 18. The amount of energy required to operate the present nitrate plant No. 2, or a probable substitute that might be put in there under the Haber or some similar process, is about 600,000-kilowatt hours—from one-half to one-third of the amount of energy that can be developed in a year or 18 months from now when Dam No. 2 is completed and the eight units are installed and operated in conjunction with the steam plant at Sheffield. Under such circumstances it does not seem necessary for the United States to proceed at once, as it would under the Ford offer, to expend another $25,000,000, when you will already have three times as much energy as you can put to use. The proposed amendment, therefore, gives to the company that may be created a preference option to acquire a license for Dam No. 3 under the terms of the Federal water power act, which would be, practically, under the terms of this amended offer, as against anybody else, for a period of three years leaving the site open solely to the Ford Co. and nobody else having an opportunity to bid.

Mr. McKenzie. May I ask you this question right on that point? Is it not your judgment that, under the terms of the contract such as the one proposed under the Ford offer, where the Government and the people of the United States are expected to receive from the hands of the lessees of that power plant the advantages that they are to receive under the Ford offer, or expect to receive under it, there should be a greater consideration going from the Government to the lessees than in the ordinary water-power proposition?

Mr. Merrill. We have provided in here that it shall be so.

Mr. McKenzie. Does not that explain one of the reasons why they propose to build Dam No. 3, that that is one of the considerations running from the Government, in order that while Mr. Ford would utilize a very large proportion of this power in the manufacture of fertilizer he will still not be entirely a philanthropist?

Mr. Merrill. Well, the question is how much have you got to subsidize Mr. Ford in order to get something done.

Mr. McKenzie. It is a question whether you are subsidizing him at all, if he pays 4 per cent on the amount of the investment.

Mr. MERRILL. He does not pay 4 per cent on the amount of the investment; he has never offered to do that. He has only offered to pay 4 per cent on so much of the investment as is incurred after his offer is accepted by Congress.

Mr. MCKENZIE. That will be all of Dam No. 3, will it not?

Mr. MERRILL. All of Dam No. 3?

Mr. MCKENZIE. Yes.

Mr. MERRILL. But it has gotten to the point where he would only pay on $20,000,000 at 4 per cent of the $45,800,000 investment in Dam No. 2, and the amount on which he would pay interest is being reduced at the rate of $1,000,000 a month. And if you should delay a year from now, getting the offer and his acceptance, he probably would not pay a cent.

Mr. MCKENZIE. Is it your judgment that is a very advantageous offer to Mr. Ford?

Mr. MERRILL. I certainly think so. I think if Mr. Ford can comply with the provisions of that offer in the production of fertilizer to the amount of 40,000 tons of fixed nitrogen, and then have left a billion kilowatt hours, he will have the cheapest water power in the United States, not excepting Niagara.

Mr. MCKENZIE. Then is it not strange that no one else in the United States has undertaken to bid up on this proposition a little bit?

Mr. MERRILL. It is in a sense strange, but the people who would be open to bid are people who do not also deal with nitrates; that is the whole situation.

Mr. MCKENZIE. Is it not true, Mr. Merrill, that those two outstanding features of the Ford proposition, the maintenance of that Government property and the continuance of the manufacture of fertilizer and experimentation in it, is something that the average business man wants to side-step?

Mr. MERRILL. I think that is true. I think the saving virtue of the Ford offer, or its only virtue, is its proposal to operate that nitrate plant.

Mr. MCKENZIE. That is why it makes it an exception and a precedent to all forms of Government contracts.

Mr. MERRILL. Then the question is—and the question must be decided—if this is the only agency with whom you can deal, whether it is necessary to go to the lengths contained in this offer to make a reasonable deal in the premises.

Mr. MCKENZIE. I understand that. I agree with you that is the only ground involved.

Mr. MERRILL. That is the only ground involved, of course, and I am discussing certain of those provisions that, in my judgment, are not necessary factors of the situation.

Mr. WURZBACH. Would not Mr. Ford be required to pay interest on the cost of construction of Dam No. 2, over and above the $17,000,000?

Mr. MERRILL. Oh, no. His offer says he will pay interest on the cost of Dam No. 2, excluding all amounts expended prior to the acceptance of the offer by Congress.

Mr. WURZBACH. It was contemplated at that time, though, that the bid would be acted upon before the Government made the additional appropriations for continuing the work on Dam No. 2.

Mr. MERRILL. That is true.

Mr. WURZBACH. Now, do you not think that Mr. Ford would be willing, carrying out his original intention as expressed in that offer, to pay interest on the cost of construction of Dam 2, over and above the $17,000,000 the Government had invested at the time he made his offer?

Mr. MERRILL. I do not know what Mr. Ford might be willing to do; I am only talking about what he has offered to do, because this is the provision of his offer, "but not including the expenditures and obligations incurred prior to the approval of this proposal by Congress."

Mr. WURZBACH. But still do you not think that that offer was made at the time the Government had expended $17,000,000, approximately, and when he probably did not contemplate that the Government would continue work on that dam——

Mr. ALMON. Resume work on that dam.

Mr. WURZBACH. Would resume work on that dam—and that a proper construction of that offer would be that he would pay interest on all amounts expended in the finishing of Dam No. 2, over and above $17,000,000?

Mr. MERRILL. I doubt if any question would be raised about that if it was made a part of the legislation; if it is made a part of the legislation, that ends it.

Mr. WURZBACH. If he would agree to do that, then, of course that objection would be removed.

Mr. MERRILL. That cures that much of it. Of course, I do not know what Mr. Ford's personal views in the premises are. Mr. Ford has never appeared

before any committee; he has never committed himself in any respect, one way or the other. What we had intended to do in drafting this amendment was to make an honest attempt to cure the objections that have been raised to the original offer of Mr. Ford, which many of them, are perfectly valid objections, and still leave the offer as good, from the financial standpoint and in other respects, to Mr. Ford, if (and this is the crux of it), if he intends to employ that power in the production of nitrates.

Mr. HULL. As a matter of fact, however, you have nothing from Henry Ford, or anyone even remotely authorized to speak for him, to indicate that he would accept this proposed bill?

Mr. MERRILL. No.

Mr. HULL. As a matter of fact, none of us have anything at the present time from anyone that authorizes anyone to say that Henry Ford would accept the bill that was proposed in the last Congress, and there are several features of that bill that will have to be changed, whether we want to or not. The Gorgas plant is out and gone and, as you say, we would have to change the arrangement for the payment of interest, because we have spent some $20,000,000 more than we expected to when he made the proposition. That is true, is it not?

Mr. MERRILL. About $8,500,000 since the offer was made.

Mr. HULL. Yes.

Mr. MERRILL. The offer originally made contained the condition it be accepted in full and not in part. The offer can not be accepted, on account of the physical facts of the situation, as it was first drafted. Then the question seems to be, why not draft an offer in the form that the Government itself thinks is a reasonable settlement of the situation, rather than sit back here and let Mr. Ford dictate to the United States Government? And then you could find out whether such terms were acceptable.

Mr. HULL. Of course, all that has to be ironed out by the committee, and that would come later. Now, when private interests build hydroelectric power plants at the end of the 50 years they revert to the Government; is that true?

Mr. MERRILL. No; not exactly true. The Government has three options when the 50 years expire. It can take over the property, paying the original cost less certain deductions for depreciation; it can lease the property to another applicant, in which case the new applicant would pay to the original applicant the same price that the United States would pay; or it can issue a new license to the original applicant on terms then to be fixed. Those are the three methods of disposition at the end of the lease.

Mr. HULL. With those three limitations, then, the Government can do as they wish.

Mr. MERRILL. The Government can do as it wishes.

Mr. HULL. With those three limitations.

Mr. MERRILL. It can act in one of those three ways; it can take its choice.

Mr. HULL. But that is at the end of the 50 years?

Mr. MERRILL. That is at the end of 50 years; yes.

Mr. HULL. Now, you spoke about the building of Dam No. 3. I am wondering whether you have considered the advisability of the river improvement, which is another step outside, but a very wonderful one, that you should consider. I am just giving you the way I look at the improvement of this No. 3, that it is essential if you are going to improve the Tennessee River and make it navigable. Now, under the Ford proposition—and, as I look at it, under any proposition that is submitted—this should be provided for, and it provides for the Government receiving interest on all the money that they invest at that dam and, therefore, if the dam was built the Government could practically charge it off to capital investment and still have the river improvement for nothing. Is not that true, excepting, of course, Dam No. 1 would have been completed?

Mr. MERRILL. Yes.

Mr. HULL. Which, of course, is a very minor proposition, but the improvement of the Tennessee River, in my opinion, should always be considered when this committee is deciding this case.

Mr. MERRILL. I agree with you there. The only question I am raising here is whether that improvement justifies the immediate expenditure of $25,000,000, and letting the dam lie idle from a power standpoint for a number of years; because there is available at Dam No. 2, with the steam plant combined, a large block of power—a very large block of power.

Mr. HULL. But if they are willing to pay the 4 per cent on the money invested they certainly think they have use for that power—whether it is Henry Ford or anybody else that makes the proposition; is not that true?

Mr. MERRILL. I do not know just how far they have considered that. I do not believe in wasting an individual's money any more than the money of the Government, just because the Government is going to get interest on it. We make a provision under this bill here that, if it is necessary, or if they can use Dam No. 3, they have a perfect right to go ahead and do it. We are not holding it out; we are simply saying that if it is built it shall be built by their capital and not the capital of the United States, just the same as any other power dam is built by others.

Mr. HULL. You understand, of course, what I am trying to draw out is that you have to improve No. 3 before you use No. 2, as far as the river transportation goes.

Mr. MERRILL. That is quite true.

Mr. HULL. I think one of the biggest things down there is the improvement of that river.

Mr. MERRILL. But the construction of that dam and the expenditure of $25,000,000 in its construction is probably not justified from the standpoint of river navigation alone. It is only a matter of comparatively a few years, perhaps inside of 10 years, when the demand for power at the Wilson Dam will be more than absorbed, whether it is in the nitrate operation or general public utility operations of the South, and then you will have to build the other. But this proposal is to start immediately and put that $25,000,000 in whether you can use the power or can not.

Mr. HULL. But, as far as the Government is concerned, you get the 4 per cent.

Mr. MERRILL. Yes, but I do not think that is good business.

Mr. HULL. That, of course, is another matter. Now, of course, you do not care, I suppose—or do you care—to go into the question of nitrate production at the Plant No. 1 and Plant No. 2, the relative merits of the two systems and the possibility of the production under the Ford proposition, which is that he take the cyanamid proposition and develop that and destroy the Haber process—that is contemplated, is it not, in the Ford proposition?

Mr. MERRILL. Nobody knows what process Ford may employ there if he is granted this right, because he may substitute something else for the cyanamid process.

Mr. HULL. At No. 2?

Mr. MERRILL. Yes; it is his option to do it. If you want to get the information about that, Doctor Cottrell is the man to tell you about that.

Mr. HULL. Quite so.

Mr. MERRILL. It is entirely outside of my field. Now, the other major change in here is a lease of the nitrate properties rather than their sale, and that is a question of policy. It is not so greatly different, as far as results accomplished, which way it is done, because if sold the Government has a right to use them for its wartime purposes; but the question may naturally arise: Why sell, anyhow—why not lease them, and it is proposed here that the lease charge shall only be $1 per annum, which is merely turning the property over without charge. Now, the question would also naturally arise to any one taking the lease over: What is going to happen to my own investment put in there, because there must be a very considerable investment put into the nitrate plant to make it a commercial proposition. We have, therefore, provided in this draft here the same provisions that apply in the Federal Water Power Act to the investments of lessees, that if the lease is not renewed or if the property goes to anybody else, the lessees shall be reimbursed for the value of all their property, new property constructed, or improvements or plant facilities added.

Mr. HULL. I am with you on that and, I do not know whether you realize it or not, but in that you follow a resolution I offered last year, which contemplates the same thing. You say, however, it is immaterial. To my notion it is a very material change and a very necessary change if you are to enforce your contract. You can not pass a fee simple title to the property and enforce the contract, in my opinion, 20 years from to-day against a corporation. If you hold the title you can. In other words, if you pass the title you are in the position of the man who tries to deed his property to his children and takes a contract for his maintenance until his death, and many a man has gone to the poor farm trying to do that. It is generally recognized as bad business and when we are getting so little for so much, as you say, the businesslike way is simply to make a lease that allows them to use the property free and then, if they try to destroy it, or to sell it, or to junk it, or anything else, it reverts immediately to the Government.

Mr. WURZBACH. Mr. Hull, would you permit me to ask you a question?

Mr. HULL. Very well.

Mr. WURZBACH. Why could not a reservation be made, if the property is conveyed, securing all the Government's rights as well where a deed is made as where a lease is made?

Mr. HULL. Well, I do not know as I want to go into that at very great length, but I have never found it was thought to be good business to do that. I have known of a great many cases where men have tried to do that and very expert lawyers have tried to do it, and it has not worked out at all; it has been a failure because they always get around the revocation of the title. They hold the goods and break the contract.

Mr. MCSWAIN. Mr. Hull, do you recall section 18 expressly confers jurisdiction upon the Federal courts to declare a forfeiture as for a breach of a condition subsequent if the terms of this contract are not carried out?

Mr. HULL. Yes, I recall that very well.

Mr. WAINWRIGHT. Mr. Merrill, do you understand that the Ford offer is the only offer that the Government has had?

Mr. MERRILL. You mean covering the nitrates?

Mr. WAINWRIGHT. Yes.

Mr. MERRILL. I have heard rumors there are other offers.

Mr. WAINWRIGHT. I mean without reference to rumors—is his the only offer, the only definite offer we have?

Mr. MERRILL. The only offer, so far as I know, that covers nitrates as well as power.

Mr. WAINWRIGHT. Assuming that the manufacture of nitrates is a fundamental and necessary condition to the transfer of this property by the Government, do you think we have exhausted the possibility of getting anybody in this country to take this property over on more advantageous terms than Mr. Ford offers?

Mr. MERRILL. I do not think so, no.

Mr. WAINWRIGHT. And agreeing to fulfill the fundamental reasons for the creation of the whole project?

Mr. MERRILL. I am pretty certain that there are other organizations working upon the matter at the present time.

Mr. WAINWRIGHT. What are they waiting for; why do not they make their offer?

Mr. MERRILL. That I can not say.

Mr. WAINWRIGHT. I am just asking for your judgment. Do you think we ought to wait any longer for other offers, or, assuming Henry Ford is the only man who will take this property, coupled with this necessary condition, that we ought to go ahead and do business with him?

Mr. MERRILL. It is my judgment that there are other offers in course of preparation that would be presented if the matter is not foreclosed.

Mr. WAINWRIGHT. That is mere rumor; why do they not come in?

Mr. MERRILL. That I do not know, because they have not come to me. Much of the energy will not be available before the latter part of 1925, so that operations can not begin before that date in any event.

Mr. WAINWRIGHT. How long do you think we ought to wait for those offers?

Mr. MERRILL. Not to exceed three months.

Mr. WAINWRIGHT. Why should we have to wait that long?

Mr. MERRILL. I said not to exceed that.

Mr. SPEAKS. Just a couple of simple questions to display my ignorance, I think: To your knowledge, how long has this great project been before the public?

Mr. MERRILL. It has been before the public ever since work was started down there; I do not recall just when, back in nineteen hundred——

Mr. SPEAKS. Some two years, or three?

Mr. MERRILL. Oh, more than that.

Mr. SPEAKS. Now, during that period, is it not your opinion that it has come to the attention of every individual or combination of individuals who might, under any circumstances, be interested in it, over a period of two or three, or four or five years?

Mr. MERRILL. I think that anybody who might be assumed to be interested in it has had full opportunity and has known all about it.

Mr. SPEAKS. Do you not think, under those circumstances, this committee would be justified in a very short time, almost immediately, undertaking to close a contract with some one?

Mr. MERRILL. I do not think this committee would be justified in waiting for anybody on their own account. The only question is whether the committee is justified in waiting on the supposition that it may be able to make a better disposition of this property in the interests of the United States.

Mr. SPEAKS. Now you seem to feel that the 4 per cent which Mr. Ford proposes to pay is not a sufficient compensation to the Government. Having in mind that, I do not know how many billions of dollars have been expended by the Government for the purpose of improving waterways for the benefit of the general public without any thought of a direct return of any character, and in view of the further fact that the improvement of this river enters into that character of an enterprise upon the part of the Government, would you not think that 4 per cent is a pretty fair return?

Mr. MERRILL. It is not 4 per cent. If it were 4 per cent, I would think it was a pretty fair proposition; but it is only 4 per cent upon a certain fraction of the investment.

Mr. SPEAKS. Only one other question, and this is for the purpose of enabling myself and perhaps some other members of the committee to have some conception of the power that may be generated by this plant if completed. You say it would result in probably a billion and a half kilowatt hours being available.

Mr. MERRILL. From the first eight units.

Mr. SPEAKS. Yes.

Mr. MERRILL. Which are being put in at the present time. It is proposed to put in 10 more units.

Mr. SPEAKS. Now, so we may have some conception of what that means, do you have any idea of the approximate number of kilowatt hours of electric energy consumed in the city of Washington daily? It has no relation to the subject, but it will give us an idea.

Mr. MERRILL. If you will let me make a guess and then correct it later——

Mr. SPEAKS. It does not matter.

Mr. MERRILL. I presume from one-fourth to one-fifth of that amount. I will have it looked up.

NOTE.—The amount of electric energy used in the District of Columbia is approximately 300,000,000 kilowatt hours per annum.

Mr. SPEAKS. What would it be in horsepower?

Mr. MERRILL. The eight units of installation will produce a maximum output of 290,000 horsepower. That is many times as much as they have here, but, of course, the 290,000 is not available all the year through. That is why we express it in the form of the kilowatt hours.

Now may I call attention to one of the other provisions of the Dickinson bill, Mr. Chairman, that is, the interest rates proposed. The figures themselves are put in more as illustrative of what we endeavored to do, that is, to establish a more favorable rate when power is used for nitrate production than when used or sold for other purposes. We propose, in this draft, that in so far as the energy produced is used in nitrate operations, that the interest rate applicable to the investment shall be 3 per cent; and that, in so far as the energy is sold for general public utility purposes, the rate shall be 6 per cent.

These percentages, of course, might be changed, but the 3 per cent was taken in a frank attempt to subsidize nitrate operations and to make it to the advantage of the company to put the largest practicable volume of the energy produced into nitrate operations.

The CHAIRMAN. Now, Mr. Reece would like to ask you a question.

Mr. REECE. Mr. Chairman, I was just going to say that since considerable apprehension has been expressed by certain gentlemen as to whether Mr. Ford would now accept the provisions of the contract under consideration, I take it they would be in favor of entering into a contract with him if we should definitely know he is willing to accept them; and, since he has not appeared before the committee, there seems to be considerable apprehension in the minds of several of the members.

The CHAIRMAN. I believe Mr. Ford will, within the next day or two, make a definite statement as to whether he will or will not accept the agreement.

Mr. WAINWRIGHT. Have you got any recommendation to make to us as to what we should do right now, as to what is the best course to pursue, if there is a possibility of inducing a better offer than Mr. Ford's?

Mr. MERRILL. You mean what would I do if I had the matter to decide?

Mr. WAINWRIGHT. Yes; if you were the committee.

Mr. MERRILL. I think, if I had the full responsibility, I would wait for further offers. Then I would close out the deal.

The CHAIRMAN. Do you understand the committee has been hearing this thing for about a year and a half?

Mr. MERRILL. Oh, yes. He only asked my opinion; it is up to the committee to take exception with me.

The CHAIRMAN. I want to say, so far as the chairman knows, no better offer has been made than the one Mr. Ford made.

Mr. MCKENZIE. On what ground do you base that opinion? You said you expressed that as your opinion; on what ground do you base it?

Mr. MERRILL. Because I had understood, indirectly, perhaps, that other offers were being worked up at this present time. Whether there are or not, can not say definitely.

Mr. MCKENZIE. As one member of the committee (and there are gentlemen here in the room, I see, who are representing different activities in connection with this matter), I have said repeatedly, in committee and out of committee, and I think on the floor of the House, in speeches I have made, that I am for the Ford proposal because it is the best proposal, in my judgment, that has been submitted; but if any one else has anything better to submit, why I would be glad indeed to consider it. I made those statements more than a year ago. That has been common knowledge and, frankly, I am willing to say that any proposition that does not include the things that I think are for the advantage of the Government and the people of the United States will not get very much consideration from me, because I will leave it to you gentlemen who run the Water Power Commission of the country—let it go over to you and let you handle it. But unless any offer includes the very basic principles of this proposed legislation, founded on section 124 of the national defense act, why I could not subscribe to it. I fought the proposition in 1916 because I viewed it as a local proposition to get money out of the Treasury to develop a certain locality of the United States. The reason I favor this proposal at the present time is because I believe it is not provincial, that it is national in its character, and will be doing good all over the country instead of just down in the State of Alabama, where our good friend Mr. Almon comes from.

Mr. HULL. I just want to say a few words. I think my colleague rather referred to me when he made the statement that he was for the Ford proposition. I am for the development of Muscle Shoals; I have been, ever since I have been in Congress, loyal to that one thing, and I agree with my colleague from Illinois in the manner that it should be developed. I am simply trying to protect the Government and shall protect, as far as I can, the Government, and I think that we ought to look at the economical side of it after we have protected the interests of the farmer and of the Government in national preparedness. And I am for the Ford proposition if it is the best offer. If we can get a better offer, I am for that, if it is as good in other respects. And now I might say, just for the information of the committee and of everybody, that I have understood for some time that there were gentlemen who wanted to make an offer on this property and I took the matter in hand so far as to write a letter to you asking you to obtain such offers if they could be obtained, and you obtained an offer for the hydroelectric power and sent it to me. I understand now that the same gentlemen are at work at the present time and practically ready to submit a proposition for the nitrate end of it, for I called their attention (and I think it is the general opinion of the committee) that any proposition for Muscle Shoals must take into consideration the fact that you have got to have somebody producing nitrates. And I understand that such a proposition will be sent to the committee—I do not know how, but it will in some way get to the committee in such shape that we can consider it—and, of course, we can all say—I am not saying a word against the Ford proposition—as far as the Ford proposition is concerned, it is not before us to-day; we have no proof there is a Ford proposition. But I think it is important, and I am willing to wait two or three days. I think we are all agreed we should not wait very long for any proposition, but I believe we are all fair enough to say we ought to give them five days to get these offers in here. I am willing to vote for a resloution closing everything in 5 or 10 days and specifying it and sending it out to the country that, if anybody has an offer they should send it to the Secretary of War or the Water Power Commission and let them transmit it to this committee, and let us have something definite before the committee and then proceed.

Mr. GARRETT. I just want to submit this proposition to you: Suppose that this entire matter had been referred to the Water Power Commission, of which you are executive secretary, and that your commission, for a year and a half,

had been battling with it as this committee has been battling with it, and your commission had for a year and a half published your hearing and you had invited everybody and had heard everybody who had a proposition to submit, and the proposition, taking the national scope that it does, your commission had been criticized as severely as this committee has been criticized for not closing the matter up and giving the people the benefit of it—what would you say at this time, now, after all that time had elapsed, as to whether or not you would think that everybody had had ample time and that your commission, as this committee, ought to proceed to this public matter, and make a disposition of it?

Mr. MERRILL. If I were convinced there were no matters pending, I would clear it up one way or the other. If I thought the delay of a few days would bring in an offer that was worthy of consideration, I would delay; because, notwithstanding the fact that Congress has not acted, the water-power project has not been completed and until it is completed the nitrate plant can not be operated.

Mr. GARRETT. In view of the fact you said you would wait a few days; in view of the further fact of all that has gone before and, in view of the fact that the President of the United States in his message directed Congress's especial attention to the project, do you not think that you would rather make that a very few days?

Mr. MERRILL. Oh, yes; I certainly would. [Laughter.]

Mr. QUIN. Mr. Merrill, how long have you been the executive secretary of the Water Power Commission?

Mr. MERRILL. Ever since its organization, in July, 1920.

Mr. QUIN. This committee, the Committee on Military Affairs, started on this nitrate plant away back yonder and finally got it built when the war started. After the war, are you familiar with the fact that a Cabinet officer of this Government, charged with the responsibility, sent broadcast all over the United States requests for interested parties to make a bid for Muscle Shoals?

Mr. MERRILL. Yes, sir; I know it has been public knowledge for a long time.

Mr. QUIN. Are you familiar with the fact that, after they were sent through proper channels and reached this committee here, 21 men, presumably good men, elected by their constituents, passed on all of them and they saw that everything in it except the Ford offer was a smoke screen and did not comply with a single condition for which that plant was established there? Are you familiar with that?

Mr. MERRILL. I am familiar with all the offers that came in.

Mr. QUIN. Are you familiar with the further fact that after they had gone through all the hard months of considering it, and after they had reported it out, that a committee of Congress pocketed that thing from May, 1921, and it was not voted on when Congress adjourned on the 4th of March, 1923? Are you familiar with that?

Mr. MERRILL. Yes.

Mr. QUIN. Do you not think, in view of that, that that action has become a stench in the nostrils of the honest people of the United States of America?

Mr. MERRILL. No; that is not my opinion. [Laughter.]

Mr. QUIN. I am telling you they think there is something dead up the creek [laughter], and we want to do the right and square thing. This technicality business does not get us anywhere.

Mr. SPEAKS. Do you not think under all the circumstances, in view of all that Percy has related here, the President was more or less warranted in recommending a small commission, who had the capacity to handle this subject, should take hold of it and do it?

Mr. MERRILL. The difficulty, as I see it in the situation, is this: There is an offer that has been presented. It is said that this is a "closed" offer; "take it or leave it," with no opportunity to negotiate terms. Now, we could never do any business in the Federal Power Commission if we were up against such a proposition as that. We sit down at the table and negotiate the arrangements, and there has been no negotiation of arrangements here so far as I am informed.

Mr. QUIN. This negotiation business caused us to lose the Gorgas steam plant, did it not? [Laughter.]

Mr. MERRILL. It gave you an opportunity to get some real money for it.

Mr. QUIN. Yes; and if they have a commission, certainly Mr. Ford and the farmer will be put down in the dirt.

The CHAIRMAN. The gentlemen are getting somewhat personal about this thing. Let us proceed in an orderly way and try to get at the facts.

Mr. MERRILL. Are you interested in some figures that I have here of the cost of developing energy under the various offers?

The CHAIRMAN. The members of the committee would be glad to hear that.

Mr. MERRILL. We have made an estimate of the amount of power that can be developed, under certain conditions, down there, and with certain installations. As I told you, approximately one and a half billion (1,410,000,000) kilowatt hours, with eight units in operation, and with the 60,000 kilowatt steam plant used as a reserve, could be developed. Now, there has been an offer made by Mr. Ford. There is this amended proposal, and there is a utilities offer for the power alone. I have compared them on the basis of the eight-unit development, and the results are about as follows:

Under the original Ford offer, the total amounts which would be paid to the United States in 50 years for Dam No. 2 would have been $54,648,000—$1,093,000 average per annum. The operating cost we estimate at $900,000 per annum for the hydro plant and $750,000 per annum for the steam plant—a total of $1,650,000.

Mr. QUIN. Repeat those figures again, please.

Mr. MERRILL. Operating, maintenance and depreciation of the hydro plant, $900,000 per year; of the steam plant, $750,000 per year. The steam plant would be used as a reserve only for filling in gaps when water is lacking. Under his offer, as originally presented, 1,410,000,000 kilowatt hours could have been produced at a cost to Mr. Ford of 1.95 mills per kilowatt hour. If you will take the offer as it now stands, with interest payable only on $20,000,000 of the cost of Dam No. 2, the energy would cost him 1.74 mills per kilowatt hour. Both figures are below, in their energy costs, any I know of in the United States.

Mr. QUIN. How much below, please, sir?

Mr. MERRILL. A fraction of a mill per kilowatt hour up to several mills.

Mr. QUIN. Lower than any other?

Mr. MERRILL. Lower than the energy costs of any other hydro plant I know of in the United States.

Mr. QUIN. Including that in the State of Washington?

Mr. MERRILL. Oh, it is far under anything in the State of Washington. It is even under the cost of power at Niagara.

Mr. QUIN. How does it compare with Niagara?

Mr. MERRILL. It is cheaper.

Mr. QUIN. How much cheaper?

Mr. MERRILL. According to the records available the average cost of energy production by the Niagara Falls Power Co. for the four years 1919 to 1922 inclusive was 3.13 mills per kilowatt hour. These costs, however, include items such as costs of transmission and of distribution which are not included in the estimates for power costs at Muscle Shoals. The costs at Niagara also include taxes, and in view of the fact that the power project at Muscle Shoals will be built and owned by the United States, no lessee of such properties would pay taxes. Furthermore, the figures for Niagara Falls include interest and depreciation upon transmission and distribution property. If, therefore, the cost be compared on a similar basis, and interest, depreciation and taxes at Niagara are prorated to the investment in production property, the average comparative cost for the four years at Niagara Falls is 2.13 mills per kilowatt hour. The difference, therefore, between the cost of power at Niagara and the estimated cost under the Ford offer for Msucle Shoals based upon similar items is from 0.18 mill to 0.39 mill, according to whether we use 1.95 or 1.74 mills as representing the Ford offer. The difference between these comparative costs at Niagara Falls and Muscle Shoals is due in part to a lower rate of interest upon investment at Muscle Shoals (although the construction cost per horsepower is materially greater), and in part to the effect of taxes on the costs at Niagara.

Mr. HULL. How does the cost compare, under the original Ford offer, which I presume is the one we should consider, say, with the power produced at Keokuk.

Mr. MERRILL. Oh, it is far cheaper.

Mr. HULL. Far cheaper. What is the cost of the Keokuk plant?

Mr. MERRILL. I do not know just what it is at the Keokuk plant, but it is my understanding that the cheapest hydroenergy developed in the United States is the energy developed at Niagara Falls. That is approximately 3 mills per kilowatt hour.

Mr. HULL. That is unusually cheap, the Keokuk plant as a hydroelectric development, is it not?

Mr. MERRILL. It has been rather expensive to develop, I think, and probably can not produce energy as cheaply as at Muscle Shoals.

Mr. HULL. I know they can not, but they are producing it there and paying interest on their bonds?

Mr. MERRILL. Oh, yes. It apparently is in good financial shape at the present time.

Mr. McKENZIE. Would it be possible for Mr. Ford successfully to manufacture fertilizer with the power costing the amounts stated by you, under your estimate?

Mr. MERRILL. Well, a mill and three-quarters per kilowatt hour is about $10 a horsepower year. I think it would.

Mr. McKENZIE. You say it would?

Mr. MERRILL. Yes. At a mill and three-quarters.

Mr. McKENZIE. I simply asked that question because it is my recollection when we had the principal hearings on this proposition there was some gentleman testified that the cost of the power was too great, and that Mr. Ford could not, with such an expensive power, manufacture fertilizer, and therefore he would not.

Mr. MERRILL. Of course, the cost to Mr. Ford under his offer is less than the actual cost of development, because he does not pay all of the charges. He pays only a portion of the interest charges, he pays nothing for maintenance and depreciation of the big dam, and he pays no taxes.

Mr. McKENZIE. Then it is your opinion he could successfully manufacture fertilizer with that power, under the conditions of his contract?

Mr. MERRILL. As I understand it, under the method employed down there now, the power is not such an important factor. With some other methods it may be very much more so, but Doctor Cottrell could tell you about that better than I.

Now, under the amended proposal we have here, under this amended bill, if Ford should produce 40,000 tons of nitrogen, that is, should apply 600,000,000 kilowatt hours to the nitrate plants' operations and dispose of the rest elsewhere, with the United States getting 3 per cent interest for the one part and 6 per cent for the other, the cost to Mr. Ford would be 2.46 mills; if, however, he should use all the energy in the production of nitrates and pay 3 per cent on all of the investment, instead of 4 per cent interest on a part of the investment, the kilowatt-hour rate would be 2 mills or, practically, the same as his original offer, varying only in the hundredths of a mill. Under the proposals presented by the group of utility companies, the annual payments would average $1,765,500, and their total payments for the 50 years would be $88,280,000. The energy cost to them would be 2.42 mills, higher than in any other offer; but, in this case also, cheap electric energy.

Mr. WURZBACH. Are you not mistaken when you say that Mr. Ford, in his proposal, does not undertake to provide for the maintenance of the dam?

Mr. MERRILL. I think not. Yes, I am mistaken to this extent, that he contributes $35,000 per annum toward maintenance.

Mr. WURZBACH. Which is estimated as being sufficient to take care of the maintenance.

Mr. MERRILL. Well, we do not so estimate it.

Mr. WURZBACH. At what do you estimate it?

Mr. MERRILL. The lowest figures that have been made up (this is for the spillway section of the dam alone) is maintenance, gates and machinery, $26,180; balance of the spillway section, $15,000; lights and accessories, about $700; total, $41,880, plus $216,000 for depreciation, or a total of about $258,000.

Mr. WURZBACH. $258,000?

Mr. MERRILL. Yes; as compared with $35,000.

Mr. WURZBACH. A year?

Mr. MERRILL. A year.

Mr. WURZBACH. Well, I think the hearings show the Chief of Engineers stated that he thought that $35,000 would take care of the maintenance.

Mr. MERRILL. Well, the maintenance is not the whole cost. For just the maintenance alone we figured about $42,000, but we have to set up amounts to replace those spillway gates, and the depreciation reserve gainst replacing the spillway gates and other machinery there, which has been estimated at about $216,000 per annum, is a charge against the United States. The United States would have to pay that.

Mr. WURZBACH. Well, there is no benefit to the lessee or to Mr. Ford in that item of expense?

Mr. MERRILL. Oh, yes; because if the gates were allowed to depreciate and to fall out, he would not have any water. These are not the lock gates; they are the gates of the main spillway section of the dam that control the pool level.

The CHAIRMAN. Did you see the testimony of General Beach, the Chief of Engineers?

Mr. MERRILL. I suppose I saw that, Mr. Chairman.

The CHAIRMAN. You do not agree with him, evidently?

Mr. MERRILL. I think there is only a comparatively small difference in the amount of maintenance, as such. We have included the question of depreciation.

The CHAIRMAN. General Beach, as I remember, said it would take considerably more than you have stated to take care of this situation.

Mr. MERRILL. These figures were made by Colonel Kelly, who is my chief engineer, in cooperation with the War Department, within the last week or two, based upon their revised figures.

The CHAIRMAN. At any rate, those are the best figures you have?

Mr. MERRILL. The best figures I have at present; yes.

Mr. HULL. In those, you do not take up the consideration of the upkeep of the dam in particular and I think that General Beach did, if I remember rightly. Is not that true? You are taking up the upkeep of the spillway and of the gates?

Mr. MERRILL. You understand how the dam is built?

Mr. HULL. Yes.

Mr. MERRILL. There is a long dam, over 4,000 feet long, with the locks at one extreme end and the power house at the other, and, in between, what is called the spillway section of the dam, which is the longer part of the dam, having steel gates located between towers. Now the Ford offer proposes to operate, maintain, and replace whatever is necessary in the power house, its substructures, and superstructures. The power house is integral with the dam and we assume that Ford's offer covers the cost of maintenance, repair, and renewal on that section of the dam which includes the power house, the operating gates of the power house and of the machinery. That leaves the balance, the so-called spillway section, between the power house and the locks, with its scores of big steel gates which have to be kept in repair, painted and minor repairs made, and which eventually will have to be replaced. Now the replacement of those gates is covered by depreciation charges (should be so covered) so that there will be moneys available to replace them when they wear out. We can assume they will probably have a life of, say, from 20 to 25 years.

Mr. HULL. Your understanding, then, under the contract, is that Ford would keep up a part of the dam?

Mr. MERRILL. The part of the dam which is built integral with the power house.

Mr. HULL. I do not know, of course, but my recollection is that the dam proper he expects the Government to keep up; he does expect to keep up the power plant, but not the dam proper.

Mr. MERRILL. The power plant and the dam are one and the same thing as far as the power house extends.

Mr. HULL. He expressly said there would be certain erosion, certain wearing away of the dam, and the Government would have to provide for that.

Mr. MERRILL. It is a question the offer does not make plain.

Mr. HULL. Yes; a very important question there. I think he expects us to take care of that. Maybe he does not.

Mr. MERRILL. It is proposed in the amended offer to have a single flat charge in the form of a per cent on the investment and then to give the responsibility to the United States to care for all the maintenance, repairs, and depreciation on the main spillway section, this being substituted for the $35,000 annual maintenance payment and the approximately $20,000 so-called amortization payment of the Ford offer.

The CHAIRMAN. Have you anything else to offer?

Mr. MERRILL. I have nothing on my own motion.

Mr. MCKENZIE. Is not this true, that in making an estimate for repairs, the repair work to be done by the Government, and making an estimate of the repairs, the work to be done by a private corporation or individual, there would be a very wide divergence in the cost?

Mr. MERRILL. There should be no divergence.

Mr. MCKENZIE. As a matter of fact, would there not be?

Mr. MERRILL. There should not be as far as estimates go. Whether in fact there would be, is another proposition.

Mr. MCKENZIE. I am talking about the facts. If you are estimating now for a certain work to be performed, for instance, under the War Department—and I am not criticizing the War Department, because I think the engineers of the War Department do splendid work, but I am thinking of the fact there would be no incentive, particularly, to save or curtail expenditures—and to do the same piece of repair work under your estimate there, the work having to be done by the Government, it might cost twice as much as it would cost if it were done by the owners of the property or the operators?

Mr. MERRILL. You mean the actual fact might be different from the estimate?

Mr. MCKENZIE. Yes.

Mr. MERRILL. That is possibly true, because you might have this situation: Here is a power plant with an operating force. Its operating force could very well take care of a considerable part of the repairs, while if it is done by an outside agency it might be done by contract or they might have to have a special price sent in to do it.

Mr. MCKENZIE. So that the committee should not be misled by just a bare estimate of the proposition of that character. We would have to look behind the estimate.

Mr. MERRILL. We are putting in the estimate the probable figure of the cost per kilowatt hour.

Mr. MCKENZIE. I understand. I am just asking your views on that.

Mr. HILL of Alabama. Do you have with you the figures from which you derived your conclusion of $1\frac{3}{4}$ mills?

Mr. MERRILL. Yes.

Mr. HILL of Alabama. Could you insert these in the record?

Mr. MERRILL. I would be glad to put those in the record. I made them up rather hurriedly last night, and I will have them checked, if you like, Mr. Chairman, and then insert them in the record.

The CHAIRMAN. Will that be satisfactory?

Mr. HILL of Alabama. Yes; that will be satisfactory.

Mr. HULL. In regard to the cost, I think it would be valuable to have your opinion. Do you think that Henry Ford or anyone else would be able to build the dams down there cheaper than the Government has been able to do it?

Mr. MERRILL. Has actually done it?

Mr. HULL. Yes.

Mr. MERRILL. The United States could turn around now and build more cheaply than it did then.

Mr. HULL. I mean under the same conditions, could they have done it? I am just asking your opinion. You are an expert on that.

Mr. MERRILL. I could not very well express an opinion. I was down on Muscle Shoals less than a month ago. The work seemed to be going extraordinarily well and being well handled. It is an enormous piece of work. It will be bigger by 50 per cent than any other dam that has ever yet been built in the world, and needs an enormous outlay to handle the material for the distance of nearly a mile over the space of the dam. There has been some very special construction work in the way of reinforced concrete for the draft tubes and inlets, bigger than have been built anywhere else, I think, on account of the large volumes of water to be handled. Under the advice of their consulting engineer, they have been using exceeding care in the placing of concrete, in order to get a better structure, and it undoubtedly is costing more to handle concrete that way than it is often handled by other people who are not so much concerned in whether they are getting a job that will stand there indefinitely. There is quite a considerable discussion in engineering circles on methods of placing concrete. They have gone to the side of safety in that kind of work.

Mr. HULL. Do you think the work is being well done and as economically as possible, considering the character of the work?

Mr. MERRILL. It looks so to me. I have been on a good many construction jobs and that looks like a very well constructed job to me.

The CHAIRMAN. Is there any other question any other member of the committee would like to ask?

Mr. SPEAKS. In referring to the suggestion that a joint commission be created to consider this proposition, I had no thought of reflecting upon the committee or of criticizing them for delay in reporting the matter out, but was urging it as a justification for immediate action now. I did not know whether you all understood that or not.

Mr. GARRETT. Your apology is accepted and is entirely satisfactory. [Laughter.]

The CHAIRMAN. Have you anything further to say, Mr. Merrill?

Mr. MERRILL. I think there is nothing further that I can say, except merely call attention to one or two provisions of the Dickinson bill, which are of no particular consequence as far as the effect on the operation of the plant would be concerned, but which bring it within the general provisions of the Federal water power act. One of those is the provision for sharing in the costs of benefits from the headwater improvements. That will be extremely important at Muscle Shoals. The energy that can be developed from the run of the river at Dam No. 2 drops down sometimes to under 80,000 horsepower. If the big reservoirs,

which are contemplated in the upper watershed, are developed, it may be possible to double the amount of prime hydropower that can be developed there at Muscle Shoals, and primary power is the valuable power. And, so, any improvement above on the river of any kind that stores water and holds it back in the high water season, is going to be a benefit down below. Whoever gets a share in the benefit ought to share in the cost.

Mr. WAINWRIGHT. Mr. Merrill, have you any knowledge or information as to when this other offer that you have referred to will be received by the committee or by you or by the Secretary of War?

Mr. MERRILL. My only information at the present time is the newspaper reports that an additional offer had been presented to the Secretary of War and was under consideration by him.

Mr. WAINWRIGHT. Is that the sole source of your information of the subject?

Mr. MERRILL. Well, I have information from the outside that such an offer was to be presented, but I have not anything definite.

The CHAIRMAN. To be presented this year or next year or when? [Laughter.]

Mr. MERRILL. That it was in course of preparation.

Mr. WAINWRIGHT. You have no view of your own as to exactly when we will get that offer?

Mr. MERRILL. No; I can not say. If I had anything to do with the preparation of such an offer, I would not waste any time in getting it in.

Mr. HILL of Alabama. Do you know whether or not it has been in course of preparation for two years, one year, six months, or longer?

Mr. MERRILL. I think in the last two months. I think it was started within the last two months.

The CHAIRMAN. I understand that one of the companies claim they will be ready to proceed on Tuesday and I think we ought to settle this thing and finish it up as soon as possible. I see gentlemen here who have been watching these proceedings for nearly two years. I do not know whether they are going to put in an offer or not, but I want to serve notice that this committee is going to close this thing up soon.

I am very much obliged to you, and is there any further statement you desire to add?

Mr. MERRILL. I have nothing more to add, Mr. Chairman.

Mr. MCKENZIE. May I ask a question, Mr. Chairman?

The CHAIRMAN. Yes.

Mr. MCKENZIE. I simply want to ask whether or not in case a new proposal comes in, through the regular channels, sent by the Secretary of War to the Speaker of the House and is referred to this committee, if it is in the hands of the committee, that the people behind the proposal would make an effort to be here on next Tuesday.

The CHAIRMAN. Yes.

Mr. MCKENZIE. So that we could take the matter up and having a hearing on it at once, without further delay.

The CHAIRMAN. Yes, and finally dispose of the thing.

Mr. MCKENZIE. And we will give them a fair hearing.

The CHAIRMAN. Yes.

Mr. HULL. Of course, we ought to have it understood we are to hear from the Ford people by Tuesday.

The CHAIRMAN. They have been informed to that effect.

Mr. MCKENZIE. Of course, they want to know whether we are going to consider those offers now on the way.

The CHAIRMAN. They have been informed that they must be prepared to argue their case finally.

Mr. HILL of Alabama. As I understand it, the notice we have given to these people who are supposed to have offers in preparation applies to all people—to everybody, the whole world?

The CHAIRMAN. Yes, sir.

Mr. WAINWRIGHT. Including Mr. Ford, who, as I understand, has no definite offer open.

The CHAIRMAN. Yes; it applies to everybody. We are going to finish this thing up.

I have just received a letter from Mr. C. M. Clark, chairman of the Tennessee Electric Power Co., and I understand that he is cooperating with the Secretary of War and their offer has gone in to him to-day. I also have here a letter from the American Nitrogen Products Co., Seattle, Wash., which I will have incorporated in the record.

AMERICAN NITROGEN PRODUCTS CO.,
Seattle, December 15, 1923.

Hon. JULIUS KAHN,
House of Representatives, Washington, D. C.

SIR: 1. This company is engaged in the manufacture of nitrogen from the atmosphere, employing the electric arc process. We have been in commercial operation since 1917, when we established our first experimental plant at La Grande, Wash., at the time this country entered the World War.

The plant investment there has increased until now it exceeds $250,000 (note photograph below). We are manufacturing sodium nitrate, a base used in the dye industry. We are the largest domestic producer of this important product, previously supplied exclusively from abroad. We have one of the two privately owned air nitrogen fixation plants in the United States operating on a commercial basis, the other being that of the Solvay Process Co., at Syracuse, N. Y., which concern employs the modified Haber process. We utilize about 6,000 horsepower in our present comparatively small plant. We own our own patents and have, at great expense and the expenditure of an enormous amount of effort, finally succeeded in overcoming practically all of the problems standing between ourselves and success in the utilization of the electric arc process in this country, employing cheap or secondary power, and we are anxious to expand. However, we have found in the past that financing has been an exceedingly difficult matter largely because of ignorance in this country as to the atmospheric nitrogen manufacturing business and its experimental nature.

2. In view of the contemplated Muscle Shoals arrangement by the Government, as to either a privately operated plant under some form of sacrifice sale or lease, amounting to a subsidy or a governmentally owned and operated plant, it will be practically impossible to finance any expansion of our operations without some assistance similar to that contemplated at Muscle Shoals. If the Ford proposal, or a similar one, should be accepted by Congress, the grantee would have such an enormous advantage that it would be impossible to interest capital in any other air nitrogen project in this country, lacking such or similar advantages. If the Government should retain and operate the plant, financing of private plants would be equally difficult. This is not an argument for or against the Ford proposal, or any other disposition of the Muscle Shoals proposition. We are simply stating facts in an effort to secure recognition of and assistance to existing private plants and to the industry in general. It seems to be the concensus of opinion that the air nitrogen business should be established in this country on a firm commercial basis in order to accomplish the object sought, viz, independence of foreign sources of nitrogen in times of either peace or war, and the manufacture of cheap fertilizer; that the Government is only interested to that extent; and that this object having once been attained, the Government is not vitally concerned with owning or maintaining the Muscle Shoals nitrate plants.

3. We respectfully submit that the surest and quickest way of insuring commercial establishment of the business in this country is governmental encouragement of not only one particular process at one particular locality, but various promising processes in different localities. As the years go by it will be found that some particular process is better adapted to the production of nitrogen in one locality, under the conditions there existing, than any other. That, then, would be the most economic and best process for that part of the country. We contend, for instance, that for the manufacture of calcium nitrate fertilizer our process is better adapted and more economic than any other process, given cheap power. This is true, also, with respect to the manufacture of nitrogen in the form of nitric acid. It should be borne in mind that for every ton of nitrogen produced from the air, irrespective of its form, we are independent of foreign sources to just that extent. We have cheap power in the Pacific Northwest, and are certain of success if we can expand to the proper magnitude, which, of course, would entail additional financing. We have, as a logical domestic market, the entire Pacific coast and the western part of the United States. As a logical export market we have Hawaii and the Orient. A plant located in the Pacific Northwest could better serve these markets than a plant at Muscle Shoals. It would also be of interest and advantage to the Government to have the electric-arc process established in this country, as well as the Haber and cyanamid processes. For the middle and eastern parts of the United States a plant at Muscle Shoals would, of course, be of advantage, and we would be interested in establishing an arc-process plant there also. We invite attention to the fact that the arc-process is better adapted to intermittent working, or

the use of secondary power, than any other air-fixation process. If an arc plant is expanded to proper magnitude it can and will employ large quantities of such power.

4. It is true that calcium nitrate is not entirely satisfactory as an ingredient of mixed fertilizers, but it is a splendid top dresser and its use in this manner will be a constantly growing one. It has proven a great success in Norway and other European countries when applied separately to the soil. We think the drift of American fertilizer practice will tend more and more toward separate application of the three fertilizer ingredients as done in Europe. The huge electric arc plant at Rjukan, Norway, is at the present time producing at the rate of 150,000 tons of calcium nitrate fertilizer per annum. No nitrate is now being imported into that country whereas prior to the development of its air nitrogen industry via the electric arc Norway was absolutely dependent upon Chile, as we are to-day. Already thousands of tons of calcium nitrate are being imported annually and sold in the United States, and we believe that the demand will continue growing. We therefore consider that the domestic manufacture of this fertilizer will prove advantageous to this country and that the production of same should be fostered and encouraged.

5. In view of all of the above we respectfully request that any bill pertaining to Muscle Shoals or the nitrogen problem contain a clause providing for encouragement in some form of worthy commercial air nitrogen enterprises during the period of infancy and growth, and that such assistance be not limited to Muscle Shoals. We suggest a fund from which governmental loans can be made at a low rate of interest to projects of proven merit, the Government to take as security such plant, or plants, as are assisted, and the right to the use of any and all patents, processes, experience, etc. In addition, and in so far as Muscle Shoals is concerned, the Government to furnish cheap power. Such governmental assistance would be of marked value in facing future severe competition with Chile, which will, no doubt, follow the growth of the American air nitrogen industry. The policy would also be in line with that already adopted in other countries. For instance, the final report, nitrogen products committee, Great Britain, contains, among others, the following recommendations:

"As far as the United Kingdom is concerned, nitrogen fixation and allied processes will constitute a new 'key' industry. The committee is of the opinion that the initiation and development of the industry will require the active support of the Government."

Soliciting your favorable consideration of our request, we are,

Respectfully yours,

AMERICAN NITROGEN PRODUCTS CO.,
By C. F. GRAFF,
President and General Manager.

DECEMBER 20, 1923.

C. F. GRAFF,
President and General Manager
American Nitrogen Products Co., Seattle, Wash.

MY DEAR SIR: I am in receipt of your letter of December 15 in which you set forth the position of your company in the production of sodium nitrate. I also note your position with reference to the interest of the Government in nitrogen fixation, with a special reference to the Government plant at Muscle Shoals.

The Committee on Military Affairs has not held meetings yet, and will not take up this subject until after the New Year. I will bring your letter to the attention of the members of the committee at the proper time.

Very truly yours,

[Western Union telegram.]

SEATTLE, WASH., *January 16, 1924.*

Hon. JULIUS KAHN,
Chairman Committee on Military Affairs,
House of Representatives, Washington, D. C.

Your wire 12th; unable to reach Washington this week; possibly not next week, but should appreciate opportunity make statement your committee later when I do reach Washington. Meanwhile kindly present subject matter our letter December 15 to committee endeavoring provide clause Muscle Shoals

bill or separate bill covering our suggestion governmental assistance worthy commercial air nitrogen projects, which policy we are certain in public interest, as it will benefit country generally and not merely sectionally.

C. F. GRAFF,
President American Nitrogen Products Co.

(The estimates submitted by Mr. Merrill are as follows:)

Cost of production of electric energy at Muscle Shoals under the terms of the various offers made.

I. EIGHT-UNIT INSTALLATION, AVAILABLE OUTPUT 1,410,000,000 KILOWATT HOURS.

Installation:	Kva.
Total for 8 units	220, 000
Sheffield steam plant	60, 000
Total	280, 000
Output 75 per cent load factor, steam plant used as auxiliary only:	Kilowatt hours.
Hydro	1, 320, 000, 000
Steam	90, 000, 000
Total	1, 410, 000, 000
Operating cost, operation, depreciation, maintenance:	
Hydro plant	$900, 000
Steam plant (estimated value $6,000,000; coal $6 per ton and 2 pounds per kilowatt hour)	750, 000
Total annual cost	1, 650, 000
Original Ford offer:[1]	
Operating expenses, hydro and steam	1, 650, 000
Average annual payment to United States	1, 093, 000
Total average annual cost (or 1.95 mills per kilowatt hour)	2, 743, 000
Ford offer at present time:[1]	
Operating expenses	1, 650, 000
Average annual payment to United States	797, 000
Total average annual cost (or 1.74 mills per kilowatt hour)	2, 447, 000
Dickinson bill:	
(*a*) 600,000,000 kilowatt hours used for nitrates; 1,410,000,000 kilowatt hours for all purposes—	
Operating expenses	1, 650, 000
Average annual payment to United States	1, 825, 080
Total (or 2.46 mills per kilowatt hour)	3, 475, 080
(*b*) All of energy used for nitrates—	
Operating expenses	1, 650, 000
Average annual payment to United States	1, 178, 640
Total (or 2.01 mills per kilowatt hour)	2, 828, 640
Utilities offer:	
Operating expenses	1, 650, 000
Average annual payment to United States	1, 765, 600
Total (or 2.42 mills per kilowatt hour)	3, 415, 600

[1] At time of original offer interest would have been payable upon approximately $28,600,000; at present time amount to which interest would be applicable is $20,000,000.

II. EIGHTEEN-UNIT INSTALLATION, AVAILABLE OUTPUT 2,320,000,000 KILOWATT HOURS.

Installation:	Kva.
Total for 18 units	530, 000
Sheffield steam plant	60, 000
Total	590, 000
Output 75 per cent load factor, steam plant used as auxiliary only:	Kilowatt hours.
Hydro	2, 140, 000, 000
Steam	180, 000, 000
Total	2, 320, 000, 000
Operating cost, operation, depreciation, maintenance:	
Hydro plant	$1, 136. 000
Steam plant (estimated value $6,000,000; coal $6 a ton and 1¾ pounds per kilowatt hour)	1, 135, 000
Total annual cost	2, 271, 000
Original Ford offer:[1]	
Operating expenses, hydro and steam	2, 271, 000
Average annual payment to United States	1, 205, 605
Total average annual cost (or 1.50 mills per kilowatt hour)	3, 476, 605
Ford offer at present time:[1]	
Operating expenses	$2, 271, 000
Average annual payment to United States	909, 800
Total average annual cost (or 1.37 mills per kilowatt hour)	3, 180, 800
Dickinson bill:	
(*a*) 600,000,000 kilowatt hours used for nitrates; 2,320,000,000 kilowatt hours for all purposes—	
Operating expenses	2, 271, 000
Average annual payment to United States	2, 271, 600
Total (or 1.96 mills per kilowatt hour)	4, 542, 600
(*b*) All energy used for nitrates—	
Operating expenses	2, 271, 000
Average annual payment to United States	1, 321, 200
Total (or 1.55 mills per kilowatt hour)	3, 592, 200
Utilities offer:	
Operating expenses	2, 271, 000
Average annual payment to United States	1, 935, 955
Total (or 1.81 mills per kilowatt hour)	4, 206, 955

[1] At time of original offer interest would have been payable upon approximately $28,600,000; at present time amount to which interest would be applicable is $20,000,000.

Résume.

EIGHT-UNIT INSTALLATION.

	Payments.		Energy costs per kilowatt hour.
	Total during 50 years.	Per annum average.	
			Mills.
Present Ford offer	$39,859,000	$797,000	1.74
Original Ford offer	54,648,000	1,093,000	1.95
Dickinson bill:			
(*a*) 42.5 per cent nitrates	91,265,400	1,825,080	2.46
(*b*) All nitrates	58,932,000	1,178,640	2.01
Utilities offer	88,280,000	1,765,600	2.42

EIGHTEEN-UNIT INSTALLATION.

			Mills.
Present Ford offer	$45,490,000	$909,800	1.37
Original Ford offer	60,280,000	1,205,600	1.50
Dickinson bill:			
(*a*) 25 per cent nitrates	113,580,000	2,271,600	1.96
(*b*) All nitrates	66,060,000	1,321,200	1.55
Utilities offer	96,798,000	1,936,000	1.81

COMPARISON OF ORIGINAL FORD OFFER WITH AMENDED OFFER OF DICKINSON BILL.

Whenever changes are made, the paragraphs of the Ford offer are shown at left, and of the proposed amended offer at right. Words italicized in Ford offer are proposed to be omitted; words italicized in amended offer are proposed to be added.

Whereas the United States, through the Chief of Engineers, United States Army, invited the undersigned to submit an offer for the power to be developed at the Muscle Shoals Wilson Dam (hereinafter referred to as Dam No. 2); and

Whereas the undersigned did, under date of July 8, 1921, submit to the Chief of Engineers an offer for the consideration of the President, the Secretary of War, and Congress, which offer proposed a lease based upon the completion of Dam No. 2, and the construction of Dam No. 3 (as designated by the United States Engineers in H. R., Doc. 1262, 64th Congress, 1st session, and hereinafter referred to as Dam No. 3), and of their power houses, by the United States, and the payment by the undersigned of a fixed annual rental therefor, and proposed to purchase Nitrate Plant No. 1 at Sheffield, Ala., Nitrate Plant No. 2 at Muscle Shoals, Ala., Waco Quarry, near Russellville, Ala., and the Warrior steam plant at Gorgas, Ala., and all transmission lines connected with said plants; and

Whereas the undersigned, at the invitation of the Secretary of War, did, on January 11, 1922, submit a modification of his former proposals, based upon the construction and completion by a company to be formed by him, of all the work referred to in the offer of July 8, 1921, aforesaid, the actual cost of said work to be borne by the United States, and agreed on behalf of said company to pay four per cent (4%) of the total actual cost of completing said plants, structures, works, and improvements as annual rental for the lease thereof;

Now, therefore, in lieu of said offer of July 8, 1921, and in accordance with said modification of January 11, 1922, and modifications of January 25, 1922, the undersigned hereby submits to the Secretary of War, and through him for appropriate action by the President and Congress, the following offer, which shall become a binding agreement upon approval of same by Congress:

1. For the purpose of carrying out the terms of this agreement, the undersigned will form a corporation (hereinafter referred to as the Company) with a capital stock of $10,000,000, or more, of which at least $10,000,000 shall be paid in in cash, to be controlled by the undersigned, which Company will immediately enter into and execute all necessary or appropriate instruments of contract to effectuate this agreement.

2. *The company* shall complete *for the United States, subject to the approval of the Chief of Engineers, U. S. Army,* Dam No. 2, its locks, power house, and all necessary equipment, *all in accordance with the plans and specifications prepared, or to be prepared or approved, by the Chief of Engineers, U. S. Army, and* progressively install the hydroelectric equipment in said power house *adequate for generating* approximately six hundred thousand (600,000) H. P., *all the work aforesaid to be performed as speedily as possible at actual cost and without profit to the company. It is understood that the* necessary lands and flowage rights, including lands for railway and terminal connections, have been or will be acquired by the United States.

3. The company will lease from the United States Dam No. 2, its power house, and all of its hydroelectric and operating appurtenances, except the locks, together with all lands and buildings owned or to be acquired by the United States connected with or adjacent to either end of the said dam, for a period of *one hundred* (*100*) years from the date when structures and equipment of a capacity of one hundred thousand (100,000) horsepower are constructed and installed and ready for service, and will pay to the United States as annual *rental therefor four per cent* (*4%*) of the actual cost of acquiring lands and flowage rights, and of *completing* the *locks*, dam, and power-house facilities (but not including *expenditures and obligations incurred prior to approval of this proposal by Congress*), *payable* annually at the end of each *lease* year, except that during and for the first six (6) years of the lease period *the rentals* shall be in the following amounts and payable at the following times, to wit: Two hundred thousand dollars ($200,000) *one* (*1*) *year from the date when* one hundred thousand (100,000) horsepower is *installed* and ready for service, and thereafter *two* hundred thousand dollars (*$200,000*) annually at the end of each year for five (5) years.

2. *The United States* shall complete Dam No. 2, its locks, power house, and all necessary equipment, *shall* progressively install the hydroelectric equipment in said power house *up to a capacity of* approximately six hundred thousand (600,000) horsepower, *and shall acquire all* necessary lands and flowage rights, including lands for railway and terminal connections.

3. The company will lease from the United States Dam No. 2, its power house, and all of its hydroelectric and operating appurtenances, except the locks *and other navigation facilities*, together with all lands and buildings owned or to be acquired by the United States *and* connected with or adjacent to either end of the said dam *and used or useful for purposes of power development*, for a period of *fifty* (*50*) years from the date when structures and equipment of a capacity of one hundred thousand (100,000) horsepower are constructed and installed and ready for service; and will pay to the United States as *reasonable* annual *recompense for the use thereof, to cover interest, maintenance, and depreciation thereon, six per cent* (*6%*) of the actual cost of acquiring lands and flowage rights and of *constructing* the dam, *power house,* and power-house facilities (but not including *the cost of locks or other navigation facilities*), *such payment to be made* annually at the end of each *calendar* year *of the lease period;* except that during and for the first six (6) years of the lease period *payments* shall be in the following amounts and payable at the following times, to wit: Two hundred thousand dollars ($200,000) *at the end of the calendar year during which the installation of* one hundred thousand (100,000) horsepower is *completed* and *made* ready for service, and thereafter *five* hundred thousand dollars ($500,000) annually at the end of each *calendar* year for five (5) years: *Provided, That in the proportion that the electric energy capable of being produced in any calendar year in said power house when operated in conjunction with the steam power plants forming a part of the properties named in paragraph 7 hereof is used by the company in manufacture of nitrogen and other commercial fertilizers, mixed*

4. *The company will further pay to the United States during the period of the lease of Dam No. 2 thirty-five thousand dollars ($35,000) annually, in installments quarterly in advance, for repairs, maintenance, and operation of Dam No. 2, its gates and locks;* it being understood that all necessary repairs, maintenance, and operation *hereof* shall be under the direction, care, and responsibility of the United States during the said *one hundred (100)* year lease period; and the company, at its own expense, will make all necessary renewals and repairs incident to efficient maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house, and will maintain the same in efficient operating condition.

or unmixed, the annual recompense payable on the same proportion of said cost of acquiring lands and flowage rights and of constructing said dam, power house, and power-house facilities shall be three per cent (3%).

4. The company, at its own expense, will make all necessary renewals and repairs incident to efficient maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house, and will maintain the same in efficient operating condition; it being understood that all necessary repairs, maintenance, and operation *of Dam No. 2, its gates and locks* shall be under the direction, care, and responsibility of the United States, *and at its expense*, during the said *fifty (50)* years lease period.

5. At all times during the period of the lease of Dam No. 2 the company will furnish to the United States, free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, U. S. Army, electric power to an amount necessary for the operation of the locks, but not in excess of two hundred (200) horsepower.

6. *As soon as the release of suitable construction equipment and labor forces at Dam No. 2 will permit, or at an earlier date if desired by the company, the company shall construct and complete, subject to the approval of the Chief of Engineers, U. S. Army, for the United States, Dam No. 3, its lock, power house, and all necessary equipment, all in accordance with plans and specifications prepared and to be prepared by the Chief of Engineers, U. S. Army, or by the company, at its option, and approved by the Chief of Engineers, U. S. Army, and progressively install the hydroelectric equipment in said power house adequate for generating approximately two hundred fifty thousand (250,000) horsepower, all the work aforesaid to be performed as speedily as possible at actual cost and without profit to the company, it being understood that the necessary lands, flowage rights, and rights of way shall be acquired by the United States through an agent to be named by the company.*

7. *The company will lease from the United States Dam No. 3, its power house, and all of its hydroelectric and operating appurtenances, except the lock, together with all lands and buildings owned or to be acquired by the United States, connected with or adjacent to either end of the said dam, for a period equal to the lease term of Dam No. 2 and its hydroelectric power equipment thereat*

6. *The United States shall reserve for a period of three (3) years from the date of acceptance of this offer the power site at the proposed location of Dam No. 3, during which period the company shall have the preference for a license for said site, upon application therefor, under the provisions of the Federal Water Power act.*

as stated in paragraph 3 hereof, in order that said respective lease terms of the two dams and the hydroelectric equipment thereat shall expire at the same time, the said period to begin from the date when structures and equipment of a capacity of eighty thousand (80,000) horsepower are constructed and installed and ready for service, and will pay to the United States as annual rental therefor, four per cent (4%) of the actual cost of acquiring lands and flowage rights, and of constructing the lock, dam, and power-house facilities, payable annually at the end of each lease year, except that during and for the first three (3) years of the lease period the rentals shall be in the following amounts and payable at the following times, to wit: One hundred sixty thousand dollars ($160,000) one (1) year from the date when eighty thousand (80,000) horsepower is installed and ready for service, and thereafter one hundred sixty thousand dollars ($160,000) annually at the end of each year for two (2) years. Dams No. 2 and No. 3 shall be included in one lease.

8. *The company will further pay to the United States during the period of the lease of Dam No. 3 twenty thousand dollars ($20,000) annually, in installments, quarterly in advance, for repairs, maintenance, and operation of Dam No. 3, its gates and lock, it being understood that all necessary repairs, maintenance, and operation thereof shall be under the direction, care, and responsibility of the United States during the said one hundred (100) year period; and the company, at its own expense, will make all necessary renewals and repairs incident to the efficient maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house, and will maintain the same in efficient operating condition.*

9. *At all times during the period of the lease of Dam No. 3 the company will furnish to the United States, free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, U. S. Army, electric power necessary for the operation of the said lock, but not in excess of one hundred (100) horsepower.*

10. *For the purpose of enabling the Government to create and provide a sinking fund to retire the cost of Dam No. 3 at the end of the lease period, the company will, at the beginning of the fourth (4th) year of the lease period, and semiannually thereafter for the remaining term of the lease, pay to the United States Government the sum of three thousand five hundred and five dollars ($3,505); and for the purpose of enabling*

the Government to create and provide a sinking fund to retire the cost of Dam No. 2 at the end of one hundred (100) years, the company will at the beginning of the seventh (7th) year of the lease period, and semiannually thereafter for the remaining term of the lease, pay to the United States Government the sum of nineteen thousand eight hundred and sixty-eight dollars ($19,868).

11. The company agrees to purchase from the United States and the United States will sell the following properties, namely:

7. The United States will lease to the company for said period of fifty (50) years and for an annual rental of one dollar ($1.00) the following properties, towit:

(a) All of the property constituting nitrate plant No. 2 (as officially known and designated), including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools, and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred or assigned to a purchaser of nitrate plant No. 2 by the United States, together with the sulphuric acid units now in storage on the premises.

(b) All of the property constituting nitrate plant No. 1 (as officially known and designated), including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools, and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred to a purchaser of nitrate plant No. 1 by the United States, but the company shall not be obligated to operate nitrate plant No. 1 as an air nitrogen fixation plant.

(c) All of the property constituting the Waco Quarry (as officially known and designated), including rights of way and buildings, material, quarry tracks, machinery, railroad tracks, appurtenances, tools, and supplies.

(d) *All of the property constituting the steam power plant, built and now owned by the Government at Gorgas, Alabama, on the Warrior River, including lands, rights of way, buildings, machinery, material, fixtures, apparatus, appurtenances, tools, and supplies, and the transmission line from the Gorgas steam plant to Nitrate Plant No. 2 at Muscle Shoals, and all other transmission lines belonging to the United States and connected with any of the aforesaid Government properties.*

12. *The company agrees to accept and the United States agrees to assign and transfer to the company, all rights, title, interest, powers, and benefit belonging to or that may accrue to the United States or its legal agents as a party to its contract dated December 1, 1917, with the Alabama Power Company in connection with said Gorgas plant and transmission line, and the company will assume all obligations and liabilities lawfully imposed upon the United States by said contract; but nothing in this paragraph shall be held to affect any question of the validity of any provision of said contract.*

13. *As the purchase price for the foregoing plants and properties to be conveyed to the company by the United States, the company will pay to the United States five million dollars ($5,000,000) in five installments as follows: One million dol-*

lars ($1,000,000) upon the acceptance of this offer, and one million dollars ($1,000,000) annually thereafter until the purchase price is fully paid, with interest at the rate of five per cent (5%) per annum on deferred payments, with the privilege of anticipating any or all such payments; possession to be delivered upon payment of the first of said installments, and deeds of conveyance to be delivered when full payment for said property has been made. Each of said deeds shall refer to or contain the provisions of this offer and said deeds shall be so drawn as to make such provisions covenants running with the land.

14. *This proposal contemplates and it is agreed that the purchase price for the property aforesaid shall not be diminished by reason of depreciation due to use or wear of buildings, machinery, and equipment or to the action of the elements, nor shall any claim be made for losses in or diminution of quantity of tools and supplies due to upkeep and maintenance during the period between the date hereof and the date of delivery of possession of said property; it being further understood that no inventory of the property need be taken, but that due care will be exercised by the United States in preserving and safeguarding the aforesaid real and personal property intact until possession thereof passes to the company. If any part or parts of the aforesaid plants necessary for proper operation of same have been removed by the United States, said part or parts shall be returned when possession of said plants passes to the company. Deeds of conveyance of real property shall warrant the title to be good and unencumbered, but in accordance with and subject to the provisions set forth in paragraph 13 hereof.*

15. Since the manufacture, sale, and distribution of commercial fertilizers to farmers and other users thereof constitutes *one of* the principal considerations of this offer, the company expressly agrees that, continuously throughout the lease period, except as it may be prevented by reconstruction of the plant itself, or by war, strikes, accidents, fires, or other causes beyond its control, it will manufacture nitrogen and other commercial fertilizers, mixed or unmixed, and with or without filler, according to demand, at nitrate plant No. 2 or its equivalent, or at such other plant or plants, *adjacent or near thereto* as it may construct, using the most economical source of power available. The annual production of these fertilizers shall have a nitrogen content of at least forty thousand (40,000) tons of fixed nitrogen which is the present annual capacity of nitrate

8. Since the manufacture, sale, and distribution of commercial fertilizers to farmers and other users thereof constitutes the principal consideration of this offer, the company expressly agrees that, continuously throughout the lease period, except as it may be prevented by reconstruction of the plant itself, or by war, strikes, accidents, fires, or other *such* causes beyond its control, it will manufacture nitrogen and other commercial fertilizers, mixed or unmixed, and with or without filler, according to demand, at nitrate plant No. 2 or its equivalent, or at such other plant or plants as it may construct, using the most economical source of power available. The annual production of these fertilizers shall have a nitrogen content of at least forty thousand (40,000) tons of fixed nitrogen, which is the present annual capacity of nitrate plant No. 2. If during the lease period said nitrate plant No. 2 is destroyed or damaged

plant No. 2. If during the lease period said nitrate plant No. 2 is destroyed or damaged from any cause, the company agrees to restore such plant within a reasonable time to its former capacity, and further agrees:

from any cause, the company agrees to restore such plant within a reasonable time to its former capacity, and further agrees:

(a) To determine by research whether by means of electric furnace methods and industrial chemistry they may be produced on a commercial scale fertilizer compounds of higher grade and at lower prices than farmers and other users of commercial fertilizers have in the past been able to obtain, and to determine whether in a broad way the application of electricity and industrial chemistry may accomplish for the agricultural industry of the country what they have economically accomplished for other industries, and if so found and determined, to reasonably employ such improved methods.

(b) To maintain nitrate plant No. 2 in its present state of readiness or its equivalent, for immediate operation in the manufacture of materials necessary in time of war for the production of explosives.

16. In order that farmers and other users of fertilizers may be supplied with fertilizers at fair prices and without excessive profits, the company agrees that the maximum net profit which it shall make in the manufacture and sale of fertilizer products shall not exceed eight per cent (8%) of the fair actual *annual* cost of production thereof.

9. In order that farmers and other users of fertilizers may be supplied with fertilizers at fair prices and without excessive profits, the company agrees that the maximum net profit which it shall make *for any year* in the manufacture and sale of fertilizer products shall not exceed eight per cent (8%) of the fair actual cost of production thereof *during such year, and that in determining such cost no items shall be included which do not represent expenditures actually made by the company, except such credits to depreciation or amortization reserves on account of properties used or useful in the manufacture of nitrogen or other commercial fertilizers as may be approved by the board hereinafter provided.*

In order that this provision may be carried out the company agrees to the creation of a board of not more than nine (9) voting members, chosen as follows: The three (3) leading representative farm organizations, national in fact, namely: The American Farm Bureau Federation, the National Grange, the Farmers' Educational and Cooperative Union of America or their successor or successors (said successor or successors to be determined, in case of controversy, by the Secretary of Agriculture) shall each designate not more than seven (7) candidates for said board in the first instance and thereafter, for succession in office, not more than three (3) candidates. The President shall nominate for membership on this board not more than seven (7) of these candidates, selected to give representation to each of the above-mentioned organizations, said nominations to be made subject to confirmation by the Senate, and there shall be two voting members of said board selected by the company: *Provided,* That not more than one shall be nominated by the President from the same State; that if the Senate shall not confirm all of said seven nominees the President shall send additional names from the said list of candidates until the Senate shall have confirmed seven: *Provided further,* That if either or any of said farm organizations or its or their successors by reason of the expiration of its or their charter or ceasing to function or failing to maintain its organization or for any cause or reason should decline, fail, or neglect to make such designations, then the Secretary of Agriculture shall make such designation or designations for such or all of said organizations as may so decline, fail, or neglect to make such designation; and if such designation is made by the Secretary of Agriculture for only one or two of said organizations, then such designation shall be made so as to give the remaining organization or organizations the same right and in the same proportion to designate candidates for said board as in the first instance and just as though all of said organizations were making such designations: *Provided, however,* That a failure to make designations at any one time time shall not thereafter deprive any organization of its original rights under this section: *And provided further,* That the terms of office of the first seven candidates nominated by the

President and confirmed by the Senate on the designation of said farm organizations shall be as follows: Two for a period of two years, two for a period of four years, and the remaining three for a period of six years, and thereafter the nominations for membership on said board made by the President, except for unexpired terms, shall be for six years each. None of the members of said board shall draw compensation from the Government, except that any which may be nominated and confirmed on the designation of the Secretary of Agriculture under the provisions hereof shall receive from the Government their actual expenses while engaged in work on said board. A representative of the Bureau of Markets, Department of Agriculture, or its legal successor, to be appointed by the President, shall also be a member of the board, serving in an advisory capacity without the right to vote. The said board shall determine what has been the cost of manufacture and sale of fertilizer products and the price which has been charged therefor, and, if necessary for the purpose of limiting the annual profit to eight per cent (8%) as aforesaid, shall regulate the price at which said fertilizer may be sold by the company. For these purposes, said board shall have access to the books and records of the company at any reasonable time. In order that such fertilizer products may be fairly distributed and economically purchased by farmers and other users thereof, the said board shall determine the equitable territorial distribution of the same and may in its discretion make reasonable regulation for the sale of all or a portion of such products by the company to farmers, their agencies, or organizations. If and when said board can not agree upon its findings and determinations, then the points of disagreement shall be referred to the Federal Trade Commission (or its legal successor) for arbitration and settlement, and the decision of said commission in such cases shall be final and binding upon the board.

10. *The company shall operate the said power house and equipment and any steam power plants now forming part of the properties named in paragraph 7 (11) hereof, or which may hereafter be constructed in connection therewith, so as to produce the fullest practicable output of usable or salable electric energy, and shall either itself transmit, distribute, and sell all surplus energy not used by it in the manufacture of nitrogen or other commercial fertilizers, or enter into contracts for such transmission, distribution, and sale. Such transmission, distribution, and sale and contracts therefor shall be subject to the regulation and control of the properly constituted authorities of the State or States in which such transmission, distribution, or sale is effected, or of the Federal Power Commission, within the respective jurisdiction of each as provided by the Federal water power act. The company shall also establish and maintain for its entire operation such system of accounts as may be prescribed by said commission, and said commission shall have, with respect to the accounts, books, and records of the company, the same authority which it has with respect to the accounts, books, and records of licenses under said act.*

11. *The determination of the proportion of electric energy used in the manufacture of nitrogen and other commercial fertilizers shall, for the purposes specified in paragraph 3 hereof, rest with the Federal Power Commission, and its decisions with respect thereto shall be final. Said commission shall also have authority to determine the practicable output of*

usable and salable electric energy to be produced and to determine the adequacy of repairs and the necessity of renewals incident to efficient maintenance and operation of said power house, substructures, superstructures, machinery, and appliances appurtenant thereto.

12. Whenever the company is directly benefited by the construction by a licensee of the United States or by the United States itself of a storage reservoir or other headwater improvement, the company shall reimburse the owner of such reservoir or other improvement for such part of the annual charges for interest, maintenance, and depreciation thereon as the Federal Power Commission shall determine to be equitable; and whenever such reservoir or other improvement is constructed by the United States the company shall pay to the United States similar charges similarly determined.

17. Whenever, in the national defense, the United States shall require all or any part of the operating facilities at nitrate plant No. 2, for the production of materials necessary in the mgnufacture of explosives or other war materials, then the United States shall have the immediate right, upon five (5) days' notice to the company, to take over and operate the same, and the company will supply the United States with hydroelectric power necessary for such operations, together with the use of all patented processes which the United States may need which the company owns or has the right to use. When required for national defense any of the company's personnel and operating organization necessary for operating any part of nitrate plant No. 2 in the manufacrure of materials for explosives, or other war materials, shall be at the disposal of the United States. For the facilities and services aforesaid the United States shall protect the company from losses occasioned by such use and shall return the said property in as good condition as when received and reasonably compensate the company for the use thereof. All duly authorized agents and representatives of the United States shall have free access at all reasonable times to inspect and study all of the operations, chemical processes, and methods employed by the company at nitrate plant No. 2, provided that such agents and representatives shall not use the information and the facts concerning any of the company's operations, except for the benefit and protection of the United States.

18. In order that *said company may be supplied with electric power and* the farmers and other users with fertilizers after the termination of the said *one-hundred-year leases*, should the United States elect not to operate said power plants but determine to lease or dispose of same, the company shall have the preferred right to negotiate with the United States *for such lease or purchase, and upon such terms as may then be prescribed by Congress.*

14. In order that the farmers and other users *may be supplied* with fertilizers after the termination of the said *fifty (50) years lease period*, should the United States elect not to operate said power plant *and other properties, or any of them*, but determine to lease or dispose of the same, the company shall have the preferred right to negotiate *for a renewal of* lease with *such agency of* the United States *as is authorized to lease or dispose of said plants and properties; and in the event the terms of the renewal offered by the United States are not accepted by the company, the conditions of this offer shall remain in effect until the United States shall lease or dispose of said plants and properties to another under terms no less favorable to the United States than offered to the company. In the event said plants and properties are leased or disposed of to another, the company shall be reimbursed for new properties or for additions to or betterments of existing properties con-*

19. In additional to any other remedies that may be possessed by the United States, and as a further method of procedure in the event of the violation of any of the terms of this *proposal* or any contracts made in furtherance of its terms, the company agrees that the Attorney General may upon the request of the *Secretary of War* institute proceedings in equity in the District Court of the United States for the Northern District of Alabama for the purpose of canceling and terminating the lease of Dam No. 2 *or Dam No. 3,* or both *of them,* because of such violation or for the purpose of remedying or correcting by injunction, mandamus, or other process any act of commission or omission in violation of the terms of this *proposal* or any contract made in furtherance thereof.

20. The above proposals are submitted for acceptance as a whole and not in part. Upon acceptance, the promises, undertakings, and obligations shall be binding upon the United States, and jointly and severally upon the undersigned, his heirs, representatives, and assigns, and the company, its successors and assigns; and all the necessary contracts, leases, *deeds,* and other instruments necessary or appropriate to effectuate the purposes of this proposal shall be duly executed and delivered by the respective parties above mentioned.

Approved and signed by me at Dearborn, Mich., *this thirty-first day of May, 1922.*

HENRY FORD.

structed or made at its own expense and used or useful in the manufacture of nitrogen or other commercial fertilizers in an amount equal to the fair value not to exceed actual cost of such properties, additions, or betterments.

15. In addition to any other remedies that may be possessed by the United States, and as a further method of procedure in the event of the violation of any of the terms of this *offer* or *of* any contracts made in furtherance of its terms, the Company agrees that the Attorney General may upon request of the *Federal Power Commission* institute proceedings in equity in the District Court of the United States for the Northern District of Alabama for the purpose of canceling and terminating the lease of Dam No. 2, or *of the other properties named herein,* or both, because of such violation, or for the purpose of remedying or correcting by injunction, mandamus, or other process any act of commission or omission in violation of the terms of this *offer* or *of* any contract made in furtherance thereof.

16. The above proposals are submitted for acceptance as a whole and not in part. Upon acceptance the promises, undertakings, and obligations shall be binding upon the United States, and jointly and severally upon the undersigned, his heirs, representatives and assigns, and the Company, its successors, and assigns; and all the necessary contracts, leases, and other instruments necessary or appropriate to effectuate the purposes of this proposal shall be duly executed and delivered by the respective parties above mentioned.

(Thereupon the committee adjourned to Tuesday, January 22, 1924, at 10 o'clock, a. m.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
January 22, 1924.

The committee met at 10 o'clock a. m., Hon. Julius Kahn (chairman) presiding.

The CHAIRMAN. Gentlemen, since the last meeting of the committee, I received a telegram from Henry Ford which I will ask the clerk to read to you, and I think a copy of it is before you, so that every member will have one.

The CLERK (reading):

DETROIT, MICH., *January, 18, 1924.*

Congressman JULIUS KAHN,
House of Representatives.

Our offer for Muscle Shoals still stands. The McKenzie bill with the Madden amendment as printed in the Madden bill is satisfactory with the following suggested amendments of section 19, page 17, beginning at line 5 of the Madden bill, "A suitable site for a steam power plant, to be located at or near Lock and Dam No. 17, Black Warrior River, Ala., or upon a site to be mutually agreed upon by the Government and Mr. Henry Ford, together with a strip of land 100

feet wide to serve as a right of way for transmission and transportation purposes between Dam No. 17, Black Warrior River, or a site to be agreed upon between the Government and Mr. Henry Ford, and nitrate plant No. 2, Muscle Shoals, Ala., with connection to Waco quarry near Russellville, Ala.;" remainder of section as appears in bill.

HENRY FORD.

The CHAIRMAN. Mr. Yates, of the Alabama Power Co., and Mr. Edgar, of the Tennessee Power Co., are here this morning to appear before the committee, and I will ask Mr. Yates kindly to take the stand.

Mr. QUIN. Mr. Chairman, I would like to know what we are considering; I do not see anything before us.

The CHAIRMAN. Well, we are considering the offer of the Tennessee Power Co. and the other power companies in the South for the use of Muscle Shoals.

Mr. QUIN. Has it been put in documentary form?

The CHAIRMAN. It is in the regular form.

Mr. QUIN. Is each member supplied with a copy?

The CHAIRMAN. I think there is one for each member. The clerk informs me that the secretaries are working on them and they will have them ready for all the members of the committee in a few minutes.

Mr. QUIN. Thank you. I had not seen it and I did not know what we had before us.

The CHAIRMAN. I realized that the members of the committee would like to see the offer and had the girls strike them off. They will be ready within a very few minutes. The clerk just called my attention to a matter in the Congressional Record, which refers to it. I will ask the clerk to read it.

The CLERK. In the Congressional Record of January 21, 1924, under "Executive communications, etc.," is the following:

"294. A letter from the Secretary of War, transmitting a plan for the development of Muscle Shoals presented jointly by the Tennessee Electric Power Co., the Memphis Power & Light Co., and the Alabama Power Co. (H. Doc. No. 158); to the Committee on Military Affairs and ordered to be printed."

It is in the Printing Office now, which is the reason we can not get it.

Mr. WAINWRIGHT. May I ask before the gentleman begins, I wonder if he would tell us something about the position of these companies, who they are, what their capital is, and who their officers are.

The CHAIRMAN. Will you also, for the record, kindly give your name in speaking of the position you occupy, etc.

Mr. WAINWRIGHT. You see, in our part of the country, we might not be so familiar with some of the names of these people, as are some of the other members of the committee from that section.

STATEMENT OF MR. E. A. YATES, VICE PRESIDENT AND GENERAL MANAGER OF THE ALABAMA POWER CO.

Mr. YATES. My name is E. A. Yates; I am vice president and general manager of the Alabama Power Co. I was born in New Jersey and educated in New Jersey as an engineer, and my experience has been largely along the lines of heavy construction work and power work.

I was connected with the Alabama Power Co. from 1911 to 1914 as chief engineer in charge of its construction work, during which time Lock No. 12 on the Coosa River was built. In 1914 I went to New York and remained there until 15 months ago, and while in New York I was engaged on construction work and power matters. During that period I spent over a year in studies of power companies all through the Southeast, going through all the plants and making a very complete study with the thought of working out interconnections between the companies in order that the benefits of interconnection might be realized.

With respect to Mr. Wainwright's suggestion that I state the names of companies who have signed this proposal, I am sorry the proposals are not here, because I would like to read them and have you gentlemen ask any questions that I might be able to answer. The proposal is signed by the Tennessee Electric Power Co., by the Memphis Power & Light Co., and by the Alabama Power Co. I am not competent to speak or discuss the financial phases of these companies, but their representatives, I understand, will be here and will be able to give you any information you may desire.

With respect to the Alabama Power Co., Mr. Thomas W. Martin is president, Mr. R. A. Mitchell and Mr. W. N. Wamsley are vice presidents, Mr. E. A. Yates is vice president and general manager. Its main offices are in Birmingham Ala., and it conducts a general utility business throughout the State. I have

not the exact figures of the property investment of the Alabama Power Co. before me, but they are in excess of $60,000,000.

With respect to the other power companies, I am not in a position to state.

The CHAIRMAN. Mr. Martin was before this committee at the last Congress, was he not?

Mr. MARTIN. Yes; Mr. Chairman.

The CHAIRMAN. He is the officer of the company to whom you referred?

Mr. YATES. Yes, sir. Mr. Chairman, if it is satisfactory, I would like to read our offer or proposal.

The CHAIRMAN. The committee I am sure will be glad to hear it.

Mr. YATES. This is dated Chattanooga, Tenn., January 15, 1924.

"The honorable the Secretary of War.

"The undersigned submit the following proposal in connection with the Muscle Shoals projects of the Government"—

And I would like to say, as I read, if there are any questions you would like to ask, I would be glad to answer them; or I can read it through, whichever is your pleasure.

The CHAIRMAN. You sent that offer to the Secretary of War, because all offers of this kind are submitted to him first?

Mr. YATES. That is my understanding; yes, sir.

The CHAIRMAN. And he sends them to the committee?

Mr. YATES. Yes, sir. Now, to continue—

"1. For the purpose of carrying out this proposal, the undersigned, together with other companies engaged in serving the public with lighting and power in the southeastern States, will form a corporation, herein called the 'power company' which will make all contracts necessary to carry out this proposal, and will provide $10,000,000 of capital therefor, or such portion of that amount as upon the acceptance of this proposal may be determined to be necessary.

"2. Upon completion of Dam No. 2 and its power house, the power company will lease the same for a term of fifty years, under the terms of the Federal water power act"——

Mr. MCKENZIE. May I ask one question right here, Mr. Chairman?

The CHAIRMAN. Yes.

Mr. MCKENZIE. I assume that you have fixed your capitalization at $10,000,000 in view of the fact that the committee, in the last Congress, insisted that Mr. Ford in his offer should fix a capitalization such as the committee felt would be protective to the interests of the Government?

Mr. YATES. I would say that the putting of the amount at $10,000,000 was governed entirely by our opinion as to the capital investment necessary to be made in connection with those structures, in order that the power might be available for distribution and for use in fertilizer.

Mr. MCKENZIE. I have forgotten, but in the former offer of the Alabama Power Co.—I think you will remember, Mr. Martin—in that offer did you have a $10,000,000 capital proposal?

Mr. MARTIN. Mr. McKenzie, we did not state the amount of the capital. It was to be determined by the necessities, if that offer was accepted.

Mr. MCKENZIE. My only purpose in asking this question is not to embarrass you at all, but simply to ascertain whether or not you were trying to follow out the wishes of the Committee on Military Affairs as expressed in the capitalization in the Ford offer.

Mr. YATES. Yes; we would like to follow out the wishes of the committee; but, as a matter of fact, that is the money that will be necessary to be invested in complying with this proposal.

Mr. MCKENZIE. That is your judgment?

Mr. YATES. Yes.

The CHAIRMAN. I would suggest, gentlemen, that we allow the witness to finish his statement and then we will ask him questions.

Mr. YATES I will begin again at No. 2:

"Upon the completion of Dam No. 2 and its power house, the power company will lease the same for a term of fifty years, under the terms of the Federal water act, and will lease the Government steam plant at Sheffield, Alabama, for a term of twenty years, and will agree to pay an annual rental therefor to the United States of two million dollars. This is interest at four per cent on $50,000,000, which includes the $45,500,000 of estimated expenditures on the hydroelectric project to the time of its completion with eight generating units of 240,000 horsepower total capacity and $4,500,000 representing the value of the Government's steam plant at Muscle Shoals. Said sum of $50,000,000 also includes the $17,000,000 expended on the project during and just after the war. After the

expiration of the lease on the steam plant, or if the steam plant should be sold to the power company as hereinafter provided, such annual rental shall be reduced by four per cent on $4,500,000.

"The lease with respect to the project at Dam No. 2 will include the hydroelectric and operating equipment with spillway gates, together with such lands and buildings owned or to be acquired by the United States in connection with the power project as may be desired by the power company, but will exclude the locks and other navigation facilities. The lease will begin from the date when hydroelectric structures and equipment (including the necessary high-tension substations) of the capacity of 100,000 horsepower are installed and made ready for service, additional equipment of approximately 140,000 horsepower to be installed by the United States and made ready for service by January 1, 1926. Work on the high-tension substation shall be commenced by the power company at its own expense as soon as this offer is accepted.

"Such annual rental will be payable at the end of each calendar year; except that for the first years of the lease period the rental shall be as follows: $300,000 at the end of the calendar year during which 100,000 hydroelectric horsepower is installed and made ready for service, or the proportionate part thereof if such 100,000 horsepower is not made ready for service the whole of the first calendar year; and thereafter $300,000 annually at the end of each year for six years; for the next four years $1,500,000 annually, increasing in the following year to the maximum rental.

"The power company will, if desired by the United States, install at its own expense additional units beyond the eight units now provided for to meet the market demands for power. If not installed by the power company, such additional units will be installed by the United States to meet market demands for power, and the annual rental will then be increased by four per cent on the cost of such additional units.

"3. The power company will, at its own expense, throughout the lease period operate and make all necessary renewals and repairs incident to efficient maintenance of the spillway gates, the power house, and substructures, machinery and appliances, superstructures, machinery, and appliances appurtenant to the power house, and will maintain the same in efficient operating condition, all in accordance with the Federal water power act, it being understood that all necessary repairs and maintenance of Dam No. 2 and the locks shall be under the direction, care, and responsibility of the United States and at its expense during the said fifty years lease period.

"4. At all times during the period of the lease the power company will furnish to the United States, free of charge, the necessary power to operate the locks and other navigation facilities at Dam No. 2."

Mr. SHERWOOD. What department of the United States? "The United States" is rather a broad statement. Do you refer to the War Department?

Mr. YATES. Well, whoever operates the locks and the navigation facilities; whichever department would have control of navigation facilities.

The CHAIRMAN. General, this offer that is being read is addressed to the honorable the Secretary of War.

Mr. SHERWOOD. I see.

Mr. YATES (reading):

"5. The lease of the steam plant shall provide for successive renewals at the same rent at the option of the power company, each for 10 years, but to expire in any event upon the expiration of the lease of No. 2 project, and it shall require the power company to make all renewals and replacements necessary to maintain the plant in good operating condition and for the insurance of the plant up to its full insurable value. The power company shall have the right to install additional units and other equipment therein which the United States may recapture in accordance with the provisions of the Federal water power act.

"6. The power company will begin the construction of Dam No. 3, its locks and powerhouse whenever requested by the United States after the completion of Dam No. 2 and will construct same at the expense of the United States, and without profit to the power company, in the shortest possible time consistent with good workmanship and economy, in accordance with plans and specifications prepared by the power company and approved as provided by the Federal water power act. The power company will, for this purpose, be permitted to make use of the construction plant at Dam No. 2. The powerhouse will have a total installation of 250,000 horsepower with equipment which includes the high-tension substation.

"7. In case the United States so proceeds with such construction, the power company will lease from the United States under the terms of the Federal water

power act for a period of fifty years the power house at Dam No. 3 and all of its hydroelectric and operating appurtenances, spillway gates, and high-tension substation, together with such lands and buildings owned or to be acquired by the United States in connection with the project as may be desired by the power company, but excluding the locks and other navigaiton facilities. Such lease shall begin from the date when structures and equipment of a capacity of 80,000 horsepower are installed and made ready for delivery of power to the power company, and the power company will pay to the United States as annual rental therefor four per cent of the actual cost up to a rental of $1,200,000 per annum, payable annually at the end of each lease year, except that for the first years of the lease period the rentals shall be as follows: $200,000 at the end of the calendar year during which 80,000 horsepower is installed and made ready for service or the proportion thereof if such 80,000 horsepower is not made ready for service the whole of the first calendar year; and $200,000 annually at the end of each year for three years, increasing with the following year to the maximum rental. The Alabama Power Co., being the owner of the site of Dam No. 3 and of certain flowage lands acquired in connection with the project, agrees to donate the same to the United States in the event the project is constructed for and at the expense of the United States. The power company will, if desired by the United States, install at its own expense all generating units when required to meet market demands for power.

"8. If the United States so proceeds with such construction, the power company will, at its own expense, throughout the lease period, operate and make all necessary renewals and repairs incident to efficient maintenance of the spillway gates, high-tension substation, the power house and substructures, superstructures, machinery, and appliances appurtenant to the power house and will maintain the same in efficient operating condition, all in accordance with the Federal water power act, it being understood that all necessary repairs, maintenance, and operation of Dam No. 3 and the locks shall be under the direction, care, and responsibility of the United States and at its expense during the said fifty-year lease period. If Dam No. 3 is constructed and operated under license from the Federal Power Commission, as hereinafter provided, the provision of said act relating to repairs and maintenance and operation shall apply.

"9. If the United States does not proceed with such construction on the plan proposed, then the power company may at any time build and operate said dam under the terms of the Federal water power act, and shall be granted a license therefor on application; one-third of the cost of the project to be borne by the United States as the value of the navigation improvement in the Muscle Shoals section of the river.

"10. At all times during the period of the lease the power company will furnish the United States, free of charge, the necessary power to operate the locks and other navigation facilities at Dam No. 3.

"11. The power company also agrees to purchase from the United States, at the option of the United States to be exercised upon the execution of the contract to carry out this offer, the 60,000-kilowatt steam plant owned by it at Muscle Shoals in connection with the nitrate plant No. 2, together with the necessary rights of way, lands, and housing facilities, and to pay therefor $4,500,000 on terms satisfactory to the Government.

"12. The projects covered by the licenses, including generating units and other additions made by the power company, shall be subject to recapture by the Government at any time during the license period or at the end of the period of fifty years under the terms of the Federal water-power act.

"13. Whenever the power company is directly benefited by the construction by a licensee of the United States or by the United States itself of a storage reservoir or other headwater improvement, the power company shall in accordance with the Federal water-power act reimburse the owner of such reservoir or other improvement for such part of the annual charges for interest, maintenance, and depreciation thereon as the Federal Power Commission shall determine to be equitable; and whenever such reservoir or other improvement is constructed by the United States the power company shall pay to the United States similar charges similarly determined.

"14. The license shall provide that whenever the safety of the United States demands, the United States shall have the right, in accordance with the Federal water power act, to take over and operate the projects covered by the licenses for the purpose of manufacturing nitrate, explosives, or munitions of war or for any other purpose involving the safety of the United States, for such length of time as should appear to the President necessary for such purposes; and the United States shall also have the right to take over and operate said Sheffield

steam plant in the same manner whenever the safety of the United States demands.

"15. Upon the completion of No. 2 project the power company will furnish and deliver for fifty years at any point within five miles of Dam No. 2, at such voltage as may be desired and at actual cost to the power company, up to 60,000 horsepower, to be used solely in the manufacture of fertilizers.

"Upon the completion of No. 3 project the power company will furnish and deliver for fifty years at any point within five miles of Dam No. 2, at such voltage as may be desired and at actual cost to power company, 40,000 additional horsepower for use solely in fertilizer manufacture.

"To the extent that the fertilizer company does not use power for such purpose, the power may be used by the power companies in public utility service.

"16. The power company also agrees to create and cause to be paid to the directors described below a fund of $1,000,000 which, with the accretions mentioned below, shall be used in electro-chemical research in the interest of agriculture and the national defense. The expenditure and administration of such fund, both principal and interest, shall be under the control of five directors, one of whom may be from time to time designated and removed by the Secretary of Agriculture, one by the Secretary of War, one by the Secretary of Commerce, one by any corporation engaged in the manufacture of fertilizers at Muscle Shoals under contract with the Government, and all not so designated may be from time to time designated and removed by the power company. The directors may increase their number from time to time to any multiple of five, the additional directors to be appointed and to be removable in like as the original directors. Action of the directors shall be by majority vote.

"The compensation of the respective directors shall be fixed from time to time by the joint action of the Secretary of Agriculture, the Secretary of War, and the Secretary of Commmerce. The directors may employ such technical and other services as they shall deem desirable, and the course of investigations made with the use of said fund (which may include investigations made elsewhere than in the laboratories of said fund), the persons, bodies and institutions to make such investigations (which may include any bureau or agency of the Government or of any state or any college, corporation or scientific body), the disposition of any results obtained, in whole or in part, from the use of said fund, and the terms of such disposal, shall be subject to the direction of said board of directors and any royalties or other proceeds shall be added to and become a part of such fund.

"Said directors shall make and publish annually reports of their proceedings and of the research and investigation made with the use of the fund and shall account annually to the agencies which appointed the directors for the receipts, disbursements, and financial commitments from said funds. Said directors may at any time vest said fund in a corporation, which shall hold the same subject to the provisions hereof and the Congress of the United States may at any time direct that such fund or any portion thereof then remaining shall thereafter be devoted to any use not herein provided for.

"The $1,000,000 mentioned above shall be paid to said fund in ten annual installments, except that any subscriber thereto may at any time anticipate his subscription in whole or in part.

"17. In addition to any other remedies that may be possessed by the United States, the power company agrees that the Attorney General may on request of the Federal Power Commission or of the Secretary of War institute proceedings as provided in the Federal water power act for the pupose of remedying or correcting by injuction, mandamus, or other process any act of commission or omission in violation of any of the terms of the contract or of any provisions of the Federal water power act applicable hereto or of any lawful regulation or order promulgated thereunder, and in case of the failure of the power company to comply with any final decree entered in any such proceeding, the Attorney General may, on request of the Federal Power Commission or of the Secretary of War, institute proceedings as provided in said Federal water power act for the purpose of revoking any license issued thereunder.

"Respectfully,

"THE TENNESSEE ELECTRIC POWER COMPANY,
"By C. M. CLARK, *Chairman.*
"MEMPHIS POWER AND LIGHT COMPANY,
"By E. W. HILL, *Vice President.*
"ALABAMA POWER COMPANY,
"By THOS. W. MARTIN, *President.*

The CHAIRMAN. Now, if there is any member of the committee who would like to ask questions about this contract, we will proceed in the regular order.

Mr. MCKENZIE. I only wish to ask one or two or three brief questions at this time, Mr. Chairman. I think I will state, before I ask the questions, that, in my judgment, this proposition is the most liberal proposal that has ever been made by any corporation as a water power proposition; but I would like to ask you this question, Mr. Yates: Is it not a fact that your proposal, liberal as it appears to be from its terms, is a water power proposal pure and simple?

Mr. YATES. It makes provision for the supply of power for the manufacture of fertilizer at actual cost.

Mr. MCKENZIE. But I am speaking now of the proposal submitted by these various companies, so far as the companies themselves are concerned. It is a power proposition pure and simple, so far as the companies whose names are attached to this proposal are concerned?

Mr. YATES. With that one exception of the fertilizer power.

Mr. MCKENZIE. Yes. You do propose, however, to sell to any company or corporation or individual who wishes to undertake the manufacture of fertilizer at Muscle Shoals, power at cost?

Mr. YATES. That is right; yes, sir.

Mr. MCKENZIE. Up to 60,000 horsepower at Dam No. 2 and 40,000 horsepower at Dam No. 3?

Mr. YATES. Yes, sir.

Mr. MCKENZIE. How would that cost price be arrived at?

Mr. YATES. The cost price would be determined by taking into consideration the rental that is paid to the Government, or the interest; by taking into consideration operating expenses and depreciation charges, and the coal that may have to be burned in order to supply this power.

Mr. MCKENZIE. Would the Public Utilities Commission of the State of Alabama have the authority to fix that price?

Mr. YATES. I should say, rather, that the Federal Water Power Commission or the Federal Government, or such agency as may be directed by the Federal Government.

Mr. MCKENZIE. Yes. There is not anything in this proposal that covers the two great basic propositions which this committee has spent so much time on in the hearings and in investigation, the first being the maintenance of the Government property at Muscle Shoals in its entirety for the period of the lease, which, under the Ford offer, is 100 years and under this would be 50 years. That is not covered by your proposal?

Mr. YATES. We make no mention of the nitrate plants.

Mr. MCKENZIE. The second proposition—and I think it is the paramount issue in all of this whole discussion and investigation—you do not obligate yourselves in any way to manufacture fertilizer?

Mr. YATES. Not in this; no, sir.

Mr. MCKENZIE. No. So that, so far as your offer is concerned, it is barren of any proposal to carry out either one of the two great propositions which are controlling, in my judgment, in the Ford offer.

Mr. YATES. Mr. McKenzie, I would like to say in this connection that there will be submitted to-morrow or the next day a well-rounded, comprehensive, complete fertilizer proposal, which we feel will be entirely satisfactory.

Mr. MCKENZIE. Well, that would come from another corporation or individuals who propose to form a corporation?

Mr. YATES. Yes, sir; it would probably be from another corporation or individuals.

Mr. MCKENZIE. And who agreed to buy power from your corporation?

Mr. YATES. Agree to buy the power at cost from Muscle Shoals.

I have, Mr. Chairman, some comparisons with respect to the power end of this situation between this offer which I have just read and Mr. Ford's offer, and I would like to have permission to distribute them.

The CHAIRMAN. Very well. I understand you will also put them into the record?

Mr. YATES. Yes, sir.

Mr. MCKENZIE. Just one other question, and then I will defer: Did you have in mind, in the preparation of this offer, section 124 of the national defense act; or, let me put it this way: Did you have section 124 of the national defense act in mind, or do you base this offer solely on the water power legislation enacted a few years ago?

Mr. YATES. The offer here, or the proposal here, which I have read, with the proposal I mentioned a few minutes ago, will combine or are supplementary

and will cover the distribution of such power that is not essential or necessary to carry out the fertilizer proposal.

Mr. McKenzie. In short, then, the primary purpose of this offer is power, and fertilizer is a secondary consideration? I am not saying that critically, but I am trying to analyze it.

Mr. Yates. I am speaking of the two offers when I speak now. I would say that we are satisfied that great value can accure to the farmer on the fertilizer proposal and also to the consumer of power for the power that is not required for the manufacture of fertilizer.

Mr. McKenzie. I do not want to ask a rather embarrassing question, but I notice in here, I think it is section 17, perhaps, where there seems to be a spirit of philanthropy exhibited in this offer, of setting aside a fund of a million dollars for a good purpose.

Mr. Yates. Yes, sir.

Mr. McKenzie. Is it a fair question to ask you, if that is the feeling of the men whom you represent, why it is that you shy away from the proposition of the manufacture of fertilizer?

Mr. Yates. Well, I think we are going to put in a proposal. I have just explained that, Mr. McKenzie.

Mr. McKenzie. All right, then. I thought you might want to make a frank statement on that. When you say "we" do you mean the same parties who have submitted this proposal will submit a fertilizer proposal or will that be an outside offer?

Mr. Yates. Probably not.

Mr. Hull. As I understand it, Mr. Yates, the people who are to submit the nitrates proposition are being organized by the same people who are submitting this proposition; is that correct?

Mr. Yates. We will be interested in the nitrates proposition; yes, sir.

Mr. Hull. Are we to understand that this proposal, as you submit it, is to be final, or are you willing to make changes as the committee might request you to make them?

Mr. Yates. We would be very glad to consider any changes, I believe; would give them our consideration.

Mr. Hull. The reason I asked that, I have noticed here something which it seems to me ought to be changed. In No. 1 you say "or such portion of that amount," referring to the $10,000,000 capitalization?

Mr. Yates. Yes, sir.

Mr. Hull (continuing). "As upon the acceptance of this proposal may be determined to be necessary."

Who is to determine?

Mr. Yates. I think the form of the contract or the form of the proposal. The option as to the sale of the Sheffield steam plant will be a factor in the determination of the capital required.

Mr. Hull. You would have no objection to the committee's putting in who is to determine it?

Mr. Yates. Well, I think it is optional with the Government; yes, sir.

Mr. Hull. If we wanted to write that in there, as a part of this contract, you would have no objection, as I understand it?

Mr. Yates. No; I think that is all right.

Mr. Hull. There is another point that I notice here, and that is the sections in regard to Dam No. 3.

Mr. Yates. Yes, sir.

Mr. Hull. It occurs to me, while I may not be right about it—

The Chairman. What number is it?

Mr. Hull. There are several; I think they commence with 6, 7, 8, and 9, all referring to Dam No. 3?

Mr. Yates. Yes, sir.

Mr. Hull. And especially No. 9. It looks to me like that section ought to go out, and I do not know but all ought to go out and something else be written in there. No. 9 says, "if the United States does not proceed with such construction on the plan proposed, then the power company may at any time build and operate them under the terms of the Federal water power act, and shall be granted a license therefor on application; one-third of the cost of the project to be borne by the United States as the value of the navigation improvement in the Muscle Shoals section of the river."

Mr. Yates. Yes, sir.

Mr. Hull. That might be a very expensive part of the contract for the Government. Nobody knows when that project will be started; nobody knows

at the present time the value of that water power, and the Government might have to pay one-third of the expense of a project that would make a great deal of money for that company. Do you catch the point?

Mr. YATES. Yes; I see, Mr. Hull, what you mean.

Mr. HULL. That part of it is looking so far ahead that it seems to me this committee has nothing to do with it. We ought to have this to do with it, that there ought to be a provision in there that Dam No. 3 should be completed at any time that the Government sees fit to do it, and to receive therefor the commercial rate for the power developed. Is not that true? That is just a business proposition.

Mr. YATES. I think the question—we have attempted to set it up that the Government might go ahead and build it, or we might go ahead and build it, according to the market demands, leaving it optional.

Mr. HULL. Leaving it open; but if you put in that clause, that the Government is to pay one-third willy-nilly, we might be paying for something we ought not to pay for. I imagine, myself, that at any time you want to build Dam No. 3, that the power developed will pay 4 per cent on the amount necessary to invest for the building of the dam. Now, I may be wrong, I do not think anybody, I do not think it is worth while discussing, but if you put that in there, it might be worth twice that and still the Government would have to pay one-third of the cost. You would have no objection to striking out anything like that, would you?

Mr. YATES. I think this, that the one-third of the cost of the project is for the navigation facilities it created—the locks and the navigation of the river.

Mr. HULL. Whether the power developed is worth more?

Mr. YATES. Well, it is optional, it seems to me, Mr. Hull, with the Government. Now they can proceed along one of two lines; they can build themselves and lease to us and we will pay 4 per cent on the cost; if they do not do that, we can go ahead and build under the Federal water power act, the Government paying what we think is a fair proportion of the cost for the navigation facilities created.

Mr. HULL. The only point is, it seems to me, that one-third of the cost of the project, that one clause, might be taken that we would have to pay one-third of the cost, and I do not think we ought to pay one-third. It may be we ought to, but it is away ahead; it is years ahead, and it might be a very embarrassing clause to have written in a contract by the Congress of this date, dealing with something away off in the future. That is what I wanted to call your attention to.

The CHAIRMAN. I will just ask you one question: Did the Secretary of War, when you submitted this to him, make any response in writing, or otherwise?

Mr. YATES. I do not know. I have never seen an acknowledgment of it, Mr. Chairman.

Mr. HULL. He sent a letter, and in the letter he made a statement.

The CHAIRMAN. The letter has not reached me.

Mr. HULL. That should have reached you.

The CHAIRMAN. It has not reached me up to this time.

Mr. FROTHINGHAM. There is something in the morning paper about it.

The CHAIRMAN. I saw that.

Mr. JAMES. I do not want to ask Mr. Yates any questions, but I would like to ask Mr. Hull how he knows the Secretary of War sent a reply?

Mr. HULL. I saw the letter when it was sent in to the Speaker and put into the basket, and I asked the Speaker if it would come to the Military Affairs Committee and he said it would be sent there, and I presumed it would. I put it in the record last night.

The CHAIRMAN. Well, it has not reached the chairman.

Mr. FROTHINGHAM. Dam No. 3 is a navigation proposition, is it not, more than power?

Mr. YATES. Combined power and navigation; yes, sir.

Mr. SPEAKS. I would like to ask, Mr. Yates, why your organization has delayed making this proposal until the committee is practically ready to make a report on the bill?

Mr. YATES. We made one proposal.

Mr. SPEAKS. I am a new member of the committee and am not familiar with what has taken place in the past. When was that made?

Mr. YATES. About two years ago.

Mr. SPEAKS. Of practically the same nature?

Mr. YATES. Along the same lines, except that we offered to complete, at our expense, the dam as it stood at that time.

Mr. SPEAKS. You are not particularly interested in the manufacture of fertilizer, as I understand it?

Mr. YATES. We will be, yes, sir.

Mr. SPEAKS. What?

Mr. YATES. Yes, sir; we will be; we are and will be. We will have a proposition here.

Mr. SPEAKS. You have not coupled it with this proposal, exactly?

Mr. YATES. We make provision in this proposal for power at cost for the manufacture of fertilizer.

Mr. SPEAKS. For somebody else, however?

Mr. YATES. Yes, sir.

Mr. SPEAKS. Then your idea is to develop power there for sale, just as a commodity to be sold?

Mr. YATES. In part, and in part for fertilizer.

Mr. SPEAKS. Do you not think that plan is likely to develop into a great promotion scheme in connection with this water power, which is so valuable to all of the people of the country and which the Government desires to have utilized for the benefit of the people of the country, rather than for the benefit of men whose sole interest is to make all the money they can out of it?

Mr. YATES. My point of view on that is, this power from Muscle Shoals can be absorbed, a large part of it, in public utility service throughout the Southeast. There is a demand for that power at this time. The Southeast is growing; industries are coming there all the time and the demand is constantly increasing. Now, as far as the question you speak of, in respect to this gigantic power that may be built up, I can only say that this power will be distributed by the power companies and, as you know, the power companies are subject to the regulation, in their States, by the public utilities commissions and, under this, will be subject to regulation as provided in the Federal water power act. Now, the regulations, you know, cover the issue of securities, they cover the question of the money we can make on the securities. Our books are open and, so far as the stockholders and the owners and anyone else securing the benefits of it, they will not; it will be passed on to the public, under the control of the regulatory bodies of the States and also the Federal Government.

Mr. SPEAKS. That is all.

Mr. WAINWRIGHT. Just one question. I am not as familiar with this as are some of the other members of the committee, being a new Member; but, assuming that the fundamental purpose of the construction of this Government enterprise was the national defense and, second, the agricultural interests, the water power part of it was only incidental, you recognize that the water power and the manufacture of fertilizer have always been considered as one proposition and have always been dealt with as if they were not to be separated. Now your plan proposes to separate the water power from the fertilizer end of it. I am wondering if this other interest that you speak of, if they represent a combination with the Alabama Power Co., if you will be willing to guarantee the manufacture of fertilizers by this subsidiary, or by this other group that you speak of, during the term of the lease, so that the Government would have that definite guarantee of the manufacture of fertilizer there by those who control the most important element of the thing commercially, namely, the water power? You rather suggest that these people are the same interests.

Mr. YATES. In part.

Mr. WAINWRIGHT. Are you prepared to guarantee it, so that, practically, the water power would be so coupled with the fertilizer?

Mr. YATES. I would suggest, if I may, that the fertilizer proposition may be considered to see whether it covers what you have in mind.

Mr. WAINWRIGHT. You are not prepared to state to-day?

Mr. YATES. No, sir.

Mr. WAINWRIGHT. Whether you are willing to guarantee that?

Mr. YATES. No, sir; I am not prepared to state on the fertilizer end, or to discuss it.

Mr. WAINWRIGHT. I think with a good many of us that is going to be a very important element in our position on this thing; I know it is with me—in other words, whether the water power here and the value of the water power is to become a guarantee of the manufacture of fertilizer?

Mr. YATES. Yes, sir.

Mr. WAINWRIGHT. You are not prepared to state now whether you will guarantee that?

Mr. YATES. No. We will submit our proposal on the fertilizer, and I think it will be clear.

Mr. WAINWRIGHT. Just one other question: How much water power were you proposing to develop at Dam No. 2—240,000 horsepower?

Mr. YATES. At Dam No. 2 the Government will, under this proposal, develop 240,000 horsepower, in eight units.

Mr. WAINWRIGHT. And you are offering to concede 60,000 of that horsepower toward the manufacture of fertilizer and nitrates?

Mr. YATES. Yes, sir.

Mr. WAINWRIGHT. Will that 60,000 horsepower be sufficient to insure the manufacture of at least 40,000 tons of nitrates?

Mr. YATES. It has ordinarily been taken that 100,000 horsepower is required for 40,000 tons of nitrogen. When Dam No. 3 comes in under this proposal, there will be 100,000 horsepower available.

Mr. WAINWRIGHT. So that we do not get the 40,000 tons of nitrates from Dam No. 2; we will only get 40,000 tons of nitrates, assuming that Dam No. 3 is constructed and we get the iull 100,000 horsepower from both.

Mr. YATES. That is a question that I am not prepared to answer except in this way, that I believe you will get the 40,000 tons of nitrogen. I believe that the development of the fertilizer manufacture will permit, possibly, that amount of power, or possibly a lesser amount, to make 40,000 tons of nitrogen. I am not prepared to say on that question right now. We will have our experts here on fertilizer, and the whole matter can be gone into very thoroughly.

Mr. WAINWRIGHT. Also my question in regard to your guarantee?

Mr. YATES. I understand, sir.

Mr. WAINWRIGHT. I was rather struck by the provision of the Madden bill, in which Mr. Henry Ford guaranteed the manufacture of fertilizer during the term of his lease, and I am wondering, as that is the guaranty of the manufacture of fertilizer by the water power, whether your people are willing to do the same thing?

Mr. YATES. I see, sir.

Mr. QUIN. Mr. Chairman, this proposal being destitute of any proposition to connect up and maintain the nitrate plants, in case of necessity for the Government in time of war and, further, as it has nothing to say about the production of fertilizers for the farmers in time of peace, I have no questions to ask.

Mr. WRIGHT. This 60,000 horsepower: Is that primary or secondary power?

Mr. YATES. That will be either primary or secondary, probably a proportion of each, whichever will be determined as the most economical power for the manufacture of fertilizer.

Mr. GARRETT. What is the common interest of all these power companies that have made this proposition?

Mr. YATES. I do not exactly get what you mean.

Mr. GARRETT. I mean by that, here are three companies that offer to take over this project. What is the present interest of those respective companies in each other?

Mr. YATES. In this project?

Mr. GARRETT. In this project; yes.

Mr. YATES. They will own this project jointly, together with probably some of the other companies in the Southeast?

Mr. GARRETT. Are these companies related now?

Mr. YATES. No, sir.

Mr. GARRETT. The stockholders in none of them are stockholders in any of the others?

Mr. YATES. I can not tell you that; I can not answer that.

Mr. GARRETT. You do not know?

Mr. YATES. I do not know.

Mr. GARRETT. Are the directors in some of them directors in any of the others?

Mr. YATES. I could not tell you.

Mr. GARRETT. Who could?

Mr. YATES. I expect that we could get a copy of the boards of directors of these various companies.

Mr. GARRETT. In regard to fertilizer that you mentioned a moment ago, the manufacture of fertilizer, and the question brought out by the gentleman from New York: In view of the testimony that has been given in the former hearings, if I am not mistaken, by some of the experts of these particular companies, or somebody did, they said it was impossible for Mr. Ford to make fertilizer down there at a profit. Is not that one of the reasons you people are fighting shy of the fertilizer proposition?

Mr. YATES. Well, we are bringing in a proposal on the fertilizer proposition, Mr. Garrett.

Mr. GARRETT. Of course that is something in the to-morrow, and we can not tell anything about it. But you do not know whether you are going to guarantee that or not; you can not say?

Mr. YATES. I think the proposal will speak for itself.

The CHAIRMAN. But you are willing to answer questions?

Mr. YATES. Yes, sir; as much as I can, Mr. Chairman.

Mr. GARRETT. Why do you, in this proposition, in No. 14, provide that in the case of emergency on the part of the United States, it may take over and use the various properties under the water power act?

Mr. YATES. Well, our license is granted under the Federal water power act.

Mr. GARRETT. Yes; but if the Government wants to take this proposition over for war purposes it can take it regardless of any water power act, can it not?

Mr. YATES. I presume it could; yes, sir; and probably would.

Mr. GARRETT. Then, there is no reason to put that in here, is there?

Mr. YATES. I believe that is just a quotation from the Federal water power act.

Mr. GARRETT. What per cent of profit are the water-power companies permitted to make under the Federal water power act?

Mr. YATES. I am not familiar with it. I believe it is on a sliding scale. I can not tell you the limits of the profit.

Mr. GARRETT. Does it run as high as 10 per cent?

Mr. YATES. I think possibly, under certain conditions, it might.

Mr. GARRETT. They may make 10 per cent?

Mr. YATES. Possibly.

Mr. GARRETT. I believe you said that your proposition does not contemplate the taking care of the nitrate plant and keeping that plant in a stand-by condition, at all?

Mr. YATES. No, sir; this has nothing to do with the nitrate plant.

Mr. MCSWAIN. I assume, from your statement, that there have been negotiations between the proposing companies and other companies in the Southeast?

Mr. YATES. Yes, sir.

Mr. MCSWAIN. Has there been any negotiations between them and some fertilizer concern—fertilizer trust?

Mr. YATES. No, sir; not to my knowledge.

Mr. MCSWAIN. Not to your knowledge?

Mr. YATES. No, sir.

Mr. HILL of Alabama. Mr. Yates, you say there has been no negotiation whatever between your power companies and any fertilizer company? I understood you to make that reply to Mr. McSwain's question.

Mr. YATES. Well, this matter has been discussed. I said, to my knowledge, there had been no negotiation with the fertilizer trust, whatever that may mean. We have discussed this with fertilizer men; we have fertilizer men in connection with the fertilizer proposal that is to be made, men who know the fertilizer business, and have been engaged in it.

Mr. HILL of Alabama. You mean men are engaged in the manufacture of fertilizer?

Mr. YATES. They are making the elements that constitute fertilizer; they are not engaged in the fertilizer trade.

Mr. HILL of Alabama. Would you care to say at this time who are these people who are going to make the fertilizer proposal?

Mr. YATES. No, sir; I would not.

Mr. HILL of Alabama. You would not care to say who they are?

Mr. YATES. No, sir.

Mr. HILL of Alabama. You did say "we"; you used the words there, "we are interested in this fertilizer proposition?"

Mr. YATES. Yes, sir.

Mr. HILL of Alabama. You recognize the fact that under section 124 of the national defense act under which the Muscle Shoals project was constructed that the two fundamental propositions were nitrates for the Government in time of war and fertilizer for the farmer in time of peace. Would you care to say why it is, then, you come in only with an offer for the power and have not brought in your nitrate and fertilizer proposition?

Mr. YATES. Well, we expect to bring it in.

Mr. HILL of Alabama. Why is it you have delayed it? Is it not a fact you all have been working and negotiating on this thing now for some months, and, instead of bringing in the dog, you simply bring in the tail?

Mr. YATES. It is true we have been working on it, and it is a large proposition and we have brought in the first element for the power.

Mr. HILL of Alabama. Have you got the fertilizer end ready to-day?

Mr. YATES. Practically ready.

Mr. HILL of Alabama. Then, if that is ready, why don't you bring it in to-day?

Mr. YATES. Because we are not ready to bring it in to-day, Mr. Hill. Our men are not here; they are on the way to Washington now.

Mr. HILL of Alabama. Your men are on the way to Washington now?

Mr. YATES. Yes, sir.

Mr. HILL of Alabama. Could you not have had the offer ready to-day?

Mr. YATES. I doubt it; no, sir.

Mr. HILL of Alabama. You do not think they could have been here to-day?

Mr. YATES. No, sir.

Mr. HILL of Alabama. Do you know when they will be ready to come?

Mr. YATES. I would say we will be here either to-morrow or the day after with the fertilizer proposal.

Mr. WAINWRIGHT. May I ask just one question, if Mr. Hill will permit me?

Mr. HILL of Alabama. Surely; go ahead.

Mr. WAINWRIGHT. Are you prepared to say you won't guarantee the manufacture of fertilizer under your scheme, Mr. Yates?

Mr. YATES. We are going to guarantee the manufacture of fertilizer. I would prefer not to go into the question of guarantees, but let the proposal speak for itself. I think it will be clear and specific.

Mr. HILL of Alabama. That is all.

Mr. MCKENZIE. As I stated before, this proposition is preeminently one of national defense. That is one of the prime purposes of the legislation we have been considering, and, of course, that is to be taken into consideration in connection with the maintenance of this great plant for the manufacture of nitrates, and, as I understand your proposition, you do not intend in any way to be held responsible for the maintenance of that property, nor for the manufacture of nitrates in time of war or fertilizer in time of peace. Now, Mr. Yates (realizing that you have presented a splendid water-power proposition before the committee), do you not feel, in justice to this committee, unless you gentlemen are prepared to say to-day that you are willing to couple together the power proposition and the protection of this great plant as a matter of national defense and to guarantee the manufacture of fertilizer in a single proposition, it seems to me this committee would be justified in taking up the matter in executive session and determining whether the committee wishes to go further in considering two separate propositions, which we feel should be linked together?

Mr. YATES. Well, Mr. McKenzie, we feel that we have submitted, as you stated, a very complete and comprehensive and good proposal on the power.

Mr. MCKENZIE. Yes.

Mr. YATES. We feel that we have a very sound and businesslike and commercial proposition on the fertilizer, and we think it should be given consideration, and our proposition should be received.

The CHAIRMAN. And you say that your proposition will be ready probably to-morrow?

Mr. YATES. It ought to be ready to-morrow or the next day to submit to the committee. That is my firm belief.

Mr. FROTHINGHAM. Is that coming through the Secretary of War?

Mr. YATES. Yes, sir.

Mr. MCKENZIE. Are you willing to admit at this time, Mr. Yates, that the fertilizer proposition will not include a proposition for the maintenance and upkeep, for the lease period, of the nitrate plant? Have you that in mind?

Mr. YATES. Well, I would rather not discuss the terms of the fertilizer proposal, to-day, Mr. McKenzie. There will be a provision in there amply protecting the manufacture of nitrates. To what extent I do not want to say; I do not want to get involved in the fertilizer discussion, because I am not an expert on fertilizer.

Mr. MCKENZIE. Of course, Mr. Yates, I think you will pardon me when you understand that many of us on this committee sat for months and months and really listened to a discussion of every possible phase of this question that could come up, and of course, while we want to be gentlemanly about it, want to be courteous, want to give everybody an opportunity if they have a proposition they want to present to the committee covering the fundamentals on which we have based the report submitted to the House, that includes these three things, as I have already stated to you. Now, you have testified you are one of the

officers of the Alabama Power Co., which was a pioneer in this work of developing Muscle Shoals back in 1916, and certainly, it seems to me, as an intelligent gentleman, which you appear to be, that you could state to this committee now whether it is the purpose of you gentlemen to in any way interlock and couple these things together, the things that are in the minds of the Congress and the people of the country at this time, and that is simply the maintenance of that plant down there for the national defense and the manufacture of fertilizer throughout each succeeding year, and it seems to me to be fair that the committee, if that is not your purpose, might just as well take it up in executive session and determine whether or not we want to stay here for a few days, or a few weeks, and listen to testimony that does not touch on the main question, and then finally take action. Now, you gentlemen are men of action.

Mr. YATES. I would say this, Mr. McKenzie, that the fertilizer proposal will interlock with the power proposal and that it will guarantee—it will go ahead definitely to make a certain amount of nitrogen. It will go ahead upon a program we believe is commercially sound and can be followed out, and will be entirely satisfactory in bringing about the fertilizer development, and, also, the distribution of fertilizer. There will be guarantees in the proposal. I have not the proposal with me; I would not want to make any statement about it to-day, other than to say I believe it will be satisfactory and sufficient, and will cover whatever you have in mind.

Mr. MCKENZIE. Now, if you will permit me, I want to call to your attention what appears to me to be one weak spot in the proposal before us this morning, in so far as the manufacture of nitrates is concerned, and that was brought out by my friend, Mr. Garrett, of Texas. I am speaking now of your proposal in comparison with the proposal of Mr. Ford. You propose to furnish 60,000 horsepower from Dam No. 2, and 40,000 horsepower from Dam No. 3, when that Dam is completed, and it is so far off yonder in the mist, according to this proposal, that you can never tell when that will be. Now, just taking that one proposition, you are 40,000 horsepower behind the proposal of Mr. Ford, and you have testified this morning it is understood and generally conceded that it takes 100,000 horsepower to manufacture 40,000 tons of nitrogen or nitrates annually. Now, if that is true, would you be willing to indicate to Congress in this proposition and say you would furnish 100,000 horsepower from Dam No. 2 the first year; or do you want to spread this thing out.

Mr. YATES. I think we could change this, if you want to make it 100,000 horsepower at the start.

Mr. MCKENZIE. Yes.

Mr. YATES. But the thing in my mind is, Mr. Ford's proposal calls for a definite commitment on Dam No. 3, which has coupled with it that Dam No. 3 will be built within the next two or three years, and when built the 100,000 horsepower is available. But it is not available now. The Government, under this proposition, has the option to go ahead and make that dam available at any time; it can make it available at any time, as under Mr. Ford's proposal.

Mr. MCKENZIE. You understand I am not criticizing you gentlemen or your offer as a business proposition?

Mr. YATES. I am trying to explain my view about it.

Mr. MCKENZIE. But I am trying to criticize it in the light of the policy of this committee in connection with this matter, in trying to carry out the legislative provisions of section 124 of the national defense act; that is all.

Mr. YATES. Yes.

Mr. HULL. You spoke of your other proposition. From a financial standpoint, the difference between this proposition and the one that you submitted two years ago is approximately 4 per cent on approximately $17,000,000, is it not? You at that time made a proposition to pay us, I think, 4 per cent on the money to be expended, which did not take into consideration the $17,000,000 which we had expended. Is not that true?

Mr. YATES. It is my belief, Mr. Hull, that our proposition offered to take over Dam No. 2 as it stood at that time, upon which had been spent approximately $17,000,000, and to complete it at our own expense.

Mr. HULL. Your proposition, then, at that time, is practically the same as Henry Ford's on Dam No. 2 was at that time. Neither one of them took into consideration the $17,000,000 we had expended.

Mr. YATES. That is true; neither one of them took that into consideration. But there would have been this difference: we contemplated finishing Dam No. 2 at our own expense, and Mr. Ford contemplated it would be finished at the Government's expense.

Mr. HULL. But that is immaterial; they both of them left out the $17,000,000. And you understand, of course, that the reason the committee did not at that time consider your proposition as one we wanted to accept was that there was no fertilizer proposition in it?

Mr. YATES. Yes, sir.

Mr. MCKENZIE. In connection with this divided proposal, suppose that we reported two bills to the House, the proposal before us submitted by you gentlemen, and then we should report out the proposal that is coming tomorrow or the next day, providing for the fertilizer manufacture, and the House should pass the power bill which is now before us, and then there would be a propaganda started throughout this country by people interested in the manufacture of fertilizer, for example, and they should defeat the fertilizer bill, where would we be?

Mr. YATES. Well, I do not know, Mr. McKenzie. [Laughter.] I have all along made the point we ought to have the fertilizer proposal to go over and discuss it and consider them together.

Mr. HILL of Maryland. Mr. Chairman, I have not had the benefit of the testimony this morning, because I have been at a meeting of the Committee on Committees, but when I came in, from what I heard I gathered that there is to be a further offer in connection with the power offer, providing for the production of fertilizer. Is that the case?

Mr. YATES. That is correct; yes, sir.

Mr. HILL of Maryland. That matter is one this committee has considered on the basis that nitrates in time of war and fertilizers in time of peace is basic, and I think what we want you to do is to "say it with fertilizer," not to "say it with power," and I would like to ask if your proposition is a proposition that provides for a definite amount of fertilizer per year.

Mr. YATES. It will provide for a definite amount of fertilizer; yes, sir.

Mr. HILL of Maryland. And will that proposition be coupled up in such a way with this power proposal that there would be a sufficient guaranty of big responsibility behind the whole thing?

Mr. YATES. I think so. I will just repeat, Mr. Hill, what I believe I said before, that the fertilizer proposition is basically sound, and, I think, will be received with satisfaction.

Mr. GARRETT. What is the capital stock of the Tennessee Electric Power Co?

Mr. YATES. I could not answer that.

Mr. GARRETT. Do you know the capital stock of any of these connected power companies that signed this contract—the amount of their capital stock?

Mr. YATES. Yes. The capital stock of the——

Mr. GARRETT. What is the capital stock of the Alabama Power Co.?

Mr. YATES. The outstanding stock of the Alabama Power Co. is about $25,000,000 now.

Mr. GARRETT. The only guaranty the Government would have under this contract of yours for the faithful performance of this contract would be the financial abilities of the companies, as they now exist, to carry out that contract You do not propose any further security than that to the Government?

Mr. YATES. Whatever is done under the Federal water power act. We take out a license under the Federal water power act.

Mr. GARRETT. I know, but the Ford proposition is backed up by the property of Henry Ford, his heirs and assigns, which is estimated will be somewhere in the neighborhood of $1,000,000,000, or, it perhaps would be that, and yours would only be a guaranty according to the financial ability of these respective companies to meet this obligation.

Mr. YATES. I am not a lawyer, but it is my understanding that there is no such guaranty in the McKenzie bill that has been accepted by Mr. Ford, of his personal fortune standing behind that, and I am doubtful if, legally, that would be so.

Mr. HILL of Maryland. Might I ask a question of my colleague in reference to that? At the last meeting of the committee Mr. Madden spoke of section 20 of this bill, which is H. R. 8, which reads as follows:

"SEC. 20. All of the contracts, leases, deeds, transfers, and conveyances necessary to effectuate the acceptance of said offer shall be binding upon the United States, and jointly and severally upon Henry Ford, his heirs, representatives and assigns, and the company to be incorporated by him, its successors and assigns."

I said at that time if that was to be a guaranty of the whole personal fortune of Henry Ford it had a great deal of weight with me. Since then I have studied

it a little more carefully and I am not clear what this means. This does not say Henry Ford will guarantee performance by the company. It says this, "All of the contracts, leases, deeds, transfers, and conveyances necessary to effectuate the acceptance of said offer." As I read this now (and I would like information about that, because we will be asked about this in the House), as I read it, all section 20 does is leading up to the acceptance of the offer; but the minute the offer between the United States and the Ford corporation is accepted there ceases to be any personal responsibility on the part of Mr. Ford. A number of us are quite uncertain about it. I read that originally to mean that all of Mr. Ford's property was behind this agreement, and that we had back of it not only a $10,000,000 corporation, but also the vast wealth and enormous energy and power of Mr. Ford. But "to effectuate the acceptance of said offer," it seems to me—and I would like to have enlightenment on it; I would like to have your view—this section, it seems to me, makes a great deal of difference with me in the acceptance of the contract, because I am more largely interested in the nitrates and fertilizers than the power—those two things. I think the Government ought to keep the plant and we need the fertilizers; and there is an enormous demand for fertilizer throughout the country. But if this only means Mr. Ford's personal property is to be liable up to the acceptance of the offer and then there is no guaranty of the Ford property, and I should like to have that modified to get a more substantial guaranty, because I do not consider the $10,000,000 guaranty of the corporation enough.

Mr. YATES. It is my understanding from the advice I have had legally that is so; that his liability is limited to the $10,000,000.

Mr. MCSWAIN. I do not think that gets us anywhere. We want to get information; we want to ask these people what they know. He is not a lawyer—he says he is not. We will pass on that later. We want information now.

The CHAIRMAN. Of course, I am trying to get the information for the members of the committee, and I was in hopes that Mr. Yates would be able to answer the question. If he is not we will pass on. Did you get an answer?

Mr. HILL of Maryland. Yes; the witness said he did not consider Mr. Ford's personal estate was liable after the acceptance of the offer.

Mr. YATES. His liability will cease with the $10,000,000.

Mr. HILL of Alabama. You tell us this offer in regard to the fertilizer is practically ready, that it will come in here possibly to-morrow or the next day, and that, in your opinion, it is basically sound.

Mr. YATES. Yes.

Mr. HILL of Alabama. But you tell us you do not care, or are unwilling to tell us this morning, just what the relation between your power companies, for whom you speak, and these people who are going to bid on the fertilizer propositions?

Mr. YATES. Except we will have an interest in it.

Mr. HILL of Alabama. Further than that you do not care to say anything?

Mr. YATES. No. sir.

The CHAIRMAN. Are there any other questions?

Mr. HULL. I do not know whether you are prepared to answer this, but in your fertilizer proposition do you propose the purchase of the plants, or the lease of the plants?

Mr. YATES. We propose the lease.

Mr. HULL. The lease?

Mr. YATES. Yes, sir.

Mr. HULL. Then all the property of the Government down there, both the hydro power plant and the nitrate plant, would be in the possession of the Government at all times to guarantee the fulfillment of any contract that is made; is that right?

Mr. YATES. That is true; yes, sir.

Mr. GARRETT. Yes; but suppose the fertilizer company that you organize here as a subsidiary blew up in two or three years? What is the Government going to do then?

Mr. YATES. It has all of its property.

Mr. GARRETT. Yes; it has all of its property, but the pople have not the fertilizer.

Mr. YATES. I think you will have to take the fertilizer proposal and judge whether it is going to give fertilizer to the farmer or not.

Mr. RANSLEY. I would like to ask, Mr. Yates, if time proves it is not possible to manufacture fertilizer there, then, of course, your companies are protected under this contract for 50 years?

Mr. YATES. I think so.

Mr. RANSLEY. In other words it is two distinct propositions. If time proves that fertilizer can not be manufactured at a profit, and the company abandons their manufacture of fertilizer, or the attempt, then, of course, your power companies are protected under this lease?

Mr. YATES. Well, I would rather not discuss that until the whole proposition is in, and coupled up. I think a lot of these questions will answer themselves.

Mr. HILL of Alabama. Have you made sufficient investigation to lead you to believe that commercial fertilizer can be made successfully at that plant?

Mr. YATES. Yes, sir.

Mr. HILL of Alabama. You state that under your contract if Dam No. 2 and Dam No. 3 are constructed you will furnish 100,000 horsepower for the manufacture of fertilizer, I believe?

Mr. YATES. Yes, sir.

Mr. HILL of Alabama. And that it is now expected that 100,000 horsepower would be sufficient to manufacture 40,000 tons of nitrogen?

Mr. YATES. I think that is true.

Mr. HILL of Alabama. Is it not the fact, though that the manufacture of nitrogen is in an experimental stage, that we do not know what form, or what shape that manufacture will take, even a year hence, or five years hence; that it is experimental, and, whereas 100,000 horsepower might be sufficient to-day, through some new invention or new discovery or something of that kind 100,000 horsepower would not be sufficient a year hence?

Mr. YATES. I would not say a year hence. There is a possibility in your statement.

Mr. HILL of Alabama. There is a possibility that it would not be sufficient—100,000 horsepower?

Mr. YATES. No, I think 100,000 horsepower would not be needed. I think the development of the art of making fertilizer might reduce the amount of power necessary.

Mr. HILL of Alabama. It might reduce or might increase it, might it not?

Mr. YATES. I am doubtful about it increasing that power.

Mr. MCSWAIN. These gentlemen who are prepared, or who are going to be prepared about the fertilizer proposition, are on their way to Washington?

Mr. YATES. Yes, sir.

Mr. MCSWAIN. Are they anywhere within 1,000 miles of Washington now, do you think?

Mr. YATES. Well, I think probably one is; the others are not.

Mr. MCSWAIN. How many thousands of miles do you think the others are away?

Mr. YATES. I should say there are probably two of them close to 1,000 miles away at this time.

Mr. MCSWAIN. Do you think those two will be prepared to talk when they get here?

Mr. YATES. I believe they will within a reasonable time; yes, sir.

The CHAIRMAN. What do you call a reasonable time?

Mr. YATES. I think this proposal, Mr. Chairman, should go in to-morrow or the day following. Now I can not say more than that. We have to discuss several matters with them and put the proposal in and arrange for their testimony.

The CHAIRMAN. I think that is a reasonable time, a day or two days.

Mr. YATES. Yes, sir.

The CHAIRMAN. Now have you finished your statement?

Mr. YATES. Yes, sir.

The CHAIRMAN. Is there anything else that you want to say regarding this contract?

Mr. YATES. Yes; I have a comparison from the power standpoint, of the power companies' offer and the Ford offer. Copies have been distributed, and I would like to go through that, if it is agreeable to you, Mr. Chairman.

The CHAIRMAN. Go ahead.

Mr. GARRETT. May I ask just one question before you start that? I want to ask the gentleman if there has been any substantial change in the ownership of the stock of the Alabama Power Co. since the last hearing?

Mr. YATES. I do not know anything in respect to that stock.

Mr. GARRETT. And the securities.

Mr. YATES. I do not know.

Mr. GARRETT. You do not know about that?

Mr. YATES. No, sir. This comparison is headed, "Muscle Shoals proposal of the associated public utility companies is better for the Government for the following reasons."

The elements of the power company proposals are set out on the left-hand side and on the right-hand side are set out the elements of the Ford offer.

Under Dam No. 2, under the power companies' offer the lease is for 50 years with no right of renewal. Under the Ford offer the lease is for 100 years with a preferred right of renewal. In the item of rental, or interest, or whatever you want to call it, the rental for 50 years with the Government exercising its option to install all units and including the steam plant, under the power companies' offer will amount to $96,800,000, and, under the Ford offer, for 50 years, the Government being required to install all the units, and on the basis that that offer is amended to pay on the $33,000,000 of expenditures, over and above $17,000,000, and the rental will accumulate in 50 years to $59,280,000. Adding a sinking fund of $1,748,384, you will have a total of $61,028,384, as compared with $96,800,000 for Dam No. 2.

Under operation, repairs, and maintenance, the power companies' estimate of the cost of maintenance and repairs of the spillway gates is $75,000 per annum, or a total of $3,750,000; whereas under the Ford offer, Mr. Ford agrees to pay up to $35,000 per year for the operation and maintenance of these gates. It is our judgment it will cost $75,000 a year.

Under the Federal water power act, we agree to pay such part of annual charges for interest, maintenance, and depreciation for headwater improvements in the Tennessee River as may be determined by the Federal Power Commission and, under the Ford offer, any benefits that might accrue to Mr. Ford by reason of the construction of reservoirs are free to him.

Under the locks and navigation facilities we agree to furnish free such power as is necessary. Mr. Ford does the same thing, except he limits the amouut to 200 horsepower.

Under the power for fertilizer we both agree to furnish it at cost.

Making a summary of the No. 2 Dam, we will actually pay in rental or interest, at the end of the 50-year period, $100,550,000, as against Mr. Ford's $62,778,384—we will pay more than he in the 50 years, $37,771,616.

We are paying interest on $17,000,000 of the expenditure on Dam No. 2, made during the war and immediately thereafter, upon which Mr. Ford is not paying interest.

We are also paying interest on the value of the Sheffield steam plant, or on the sum of $4,500,000. The interest on these two items will amount to $860,000 annually. Now, setting that up in the form of a sinking fund, as you might say, similar to the $39,736 Mr. Ford sets up in a sinking fund and making a comparison, that $860,000 that we are paying over and above Mr. Ford, with simple interest, will amount to $62,600,000, and with compound interest, will amount to more than $80,000,000; whereas the $39,736 annual sinking fund proposed by Mr. Ford will, at simple interest, at the end of 50 years, amount to $3,321,929, and with compound interest it will amount to $3,900,000.

A similar comparison is made of No. 3 Dam, the power companies leasing it for 50 years with no right of renewal, with the Government having the right to build or not to build; Mr. Ford leases it for 100 years with a preferred right of renewal and the Government required to build.

The rental or interest paid by the power companies during this 50-year period with the Government exercising its option to install all units, would be $44,-600,000; the rental paid by Mr. Ford, including the sinking fund would be $44,788,440. Adding the operation, repairs, and maintenance of the spillway gates, estimated at $75,000 on the part of the power companies, shows a figure of $3,750,000 as the accumulated cost of this maintenance compared with the $20,000 per annum given by Mr. Ford to the Government for this purpose which, at the end of the period, would amount to $940,000.

With regard to the headwater improvement we agree to pay for same as under No. 2. Locks and navigation facilities are practically the same as under No. 2.

In summarizing No. 3 our payments are $48,350,000, as compared with $45,-728,000 by Mr. Ford, or a difference for 50 years of $2,621,000. The payments proposed by the power companies over those proposed by Mr. Ford for the two projects for a period of 50 years are $40,393.176.

The total payments by the power companies on the basis of 100 years are $316,200,000. The total payments by Mr. Ford for a period of 100 years are $229,600,000, and the saving on the two projects for 100 years on this baisis to the Government would be $86,605,876.

There are other provisions of the two offers that could be compared. Under the power company offer the rates and earnings are subject to regulation. All property is subject to recapture by the Government at the end of 50 years at the original cost, not exceeding fair value. The security issues are also subject to regulation. Under the Ford offer the rates and service are not subject to regulation, and are not subject to recapture even if at war.

The power companies offer $4,500,000 for the steam plant at Muscle Shoals, leaving the Government with both nitrate plants costing approximately $80,000,000. Mr. Ford offers $1,520,512.75 for both nitrate plants, including the steam plant and Waco quarry.

The power companies devote a million dollars to research along fertilizer lines. Mr. Ford makes no definite commitment as to the amount of money. The power companies' profits are regulated by public authority. Mr. Ford's profits are not regulated.

The power companies offer to install at their expense additional units at Dam No. 2 costing $5,000,000. Mr. Ford requires the Government to also acquire a site for a steam plant and right of way about 100 miles in length to serve as a right of way, and to erect a steam plant and transmission line somewhere in the vicinity of Lock No. 17, on the Warrior River, at a cost of $3,742,487.25. The power companies may, under the conditions of this offer, at their own expense, build Dam No. 3, estimated at a cost of $16,000,000 to the power companies.

If the Government exercises the options that are set up in our proposal there is a possibility of saving $25,500,000. There is a saving on the proposed expenditure for the new plant on the Warrior River of $3,472,000, and there are no additional Government appropriations required for the power proposal, whereas under the Ford proposal it is estimated that additional appropriations required will approximate $28,500,000.

Mr. McKenzie. I would like to ask the gentleman one or two questions.

The Chairman. Are you through?

Mr. Yates. I am through with that; yes, sir.

Mr. McKenzie. Do you consider it a fair comparison, Mr. Yates, just to consider this in the light of dollars and cents between the Ford offer and your offer?

Mr. Yates. Well, we have put it up on that basis on the power end of it. As I explained, I was discussing the power end.

Mr. McKenzie. The only element of consideration in your comparison, running from Mr. Ford to the Government, is the number of dollars that he has to pay. You have not taken into consideration the other matters and things he is supposed to do and perform under his contract.

Mr. Yates. We have not considered the fertilizer end at all in the situation.

Mr. McKenzie. It is simply a cold, calculating comparison in dollars and cents that the Government would receive from your companies in the end and what the Government would receive from Mr. Ford.

Mr. Yates. That is true.

Mr. McKenzie. In dollars and cents?

Mr. Yates. That is true.

Mr. McKenzie. Do you think that is a fair comparison of the two propositions?

Mr. Yates. Well, I think it is on the power end; yes sir, Mr. McKenzie.

Mr. McKenzie. On the power end; yes.

Mr. Yates. On the power end I think it is clean-cut and fair.

Mr. McKenzie. But you do not believe that the other considerations mentioned in Mr. Ford's offer are far greater than the number of dollars involved in the transaction?

Mr. Yates. Well, I think we realize the manufacture of fertilizer is very desirable and essential, and, for that reason, we are going to bring in a proposal along those lines.

Mr. McKenzie. I did not follow you closely, but do you include in this comparison what it will cost the Government to maintain in a stand-by condition nitrate plant No. 1?

Mr. Yates. No; we do not touch on the nitrate plants at all.

Mr. McKenzie. You do not credit Mr. Ford with anything on that?

Mr. Yates. No, we do not touch on the nitrate plants at all.

Mr. Hill of Maryland. On January 18, Mr. Ford sent a telegram to this committee, and in that he refers to a strip of land 100 feet wide to serve as a right of way for transmission and transportation purposes, between Dam No. 17,

Black Warrior River, or a site to be agreed upon between the Government and Mr. Henry Ford, and nitrate plant No. 2, Muscle Shoals, Ala. I am not for any proposition that does not take care of fertilizer, but I am interested in the dollar-and-cent return to the United States.

Mr. YATES. Yes, sir.

Mr. HILL of Maryland. Now, I remember very well the inspection trip we made, and I remember very well the Black Warrior River.

Mr. YATES. Yes, sir.

Mr. HILL of Maryland. And I remember Lock No. 17.

Mr. YATES. Yes, sir.

Mr. HILL of Maryland. I remember the bluffs above it. I want to ask one or two questions, if you know the answers; I do not know whether you do, but I wish your company would furnish the information.

Mr. YATES. Yes, sir.

Mr. HILL of Maryland. How many miles is it from Lock No. 17 on the Warrior River to Muscle Shoals, approximately?

Mr. YATES. I should say it is about 115 miles. It is about 94 miles from Sheffield to Gorgas, and I believe Lock No. 17 is about 15 to 18 miles down the river from Gorgas.

Mr. HILL of Maryland. That makes how much in all?

Mr. YATES. I would say around 115 to 120.

Mr. HILL of Maryland. Now, this speaks of that 100 foot strip as a way for transmission, which might be possible because transmission wires can go up and down hill.

Mr. YATES. Oh, yes.

Mr. HILL of Maryland. And as a way for transportation. Now, is it possible—would not a line have to go across rivers, over the mountains, and everything else of that sort?

Mr. YATES. Well, if you mean transportation by railroad, and they go in with the primary idea of building a railroad, it would not be a straight line.

Mr. HILL of Maryland. It would not be?

Mr. YATES. And that country is very rugged.

Mr. HILL of Maryland. How much would a 100-foot transportation strip cost, in your estimation—and I understand you are an engineer?

Mr. YATES. It is a question.

Mr. HILL of Maryland. Could you inform yourself on that and advise the committee?

Mr. YATES. I can get some information. We know what rights of way cost.

Mr. HILL of Maryland. I thought you would know what rights of way cost. There is an additional element in the Ford offer.

Mr. YATES. There is an additional element about which I can not speak.

Mr. HILL of Maryland. It has to be taken into consideration in the cost?

Mr. YATES. Yes, sir.

Mr. WRIGHT. The cost involved to the Government in constructing this big plant on the Warrior River, as proposed in the Madden bill, including the transmission line, could not by the terms of the bill exceed approximately $3,500,000, the amount which the Government has already received for its interest in the Gorgas steam plant, could it? That is fixed by the terms of the bill?

Mr. YATES. I do not know whether any additional burdens are added by this telegram requiring the Government to get this right of way.

Mr. WRIGHT. The bill speaks for itself, and if the bill says that, that determines it, does it not?

Mr. YATES. I understood this really was an amendment to the bill.

Mr. WRIGHT. So it may be; but the bill says the cost shall not exceed the amount received by the Government for its interest in the Gorgas plant.

Mr. YATES. That is my understanding, that the cost shall not exceed that.

Mr. WRIGHT. That simply gives authority to construct this transmission line.

Mr. YATES. I do not know; I can not tell.

The CHAIRMAN. Does that conclude what you have to say?

Mr. YATES. I have some maps here, Mr. Chairman, I would like to pass out, so that the members of the committee might have them, and I would like to make some further statements with respect to them.

The CHAIRMAN. Well, it is 12 o'clock, and the committee has not received permission from the House to sit during sessions of the House, so that we will take an adjournment until 10 o'clock to-morrow.

(The comparison in parallel columns is as follows:)

Muscle Shoals proposal of the Associated Public Utility Co. is better for the Government for the following reasons:

POWER CO.'S OFFER.	FORD OFFER.
Dam No. 2.	*Dam No. 2.*
1a. Leased for 50 years; no right of renewal.	*1b.* Leased for 100 years with preferred right of renewal.
Rental for 50 years (Government exercising its option to install all units), including steam plant, $96,800,000.[1]	Rental (for 50 years), Government required to install all units. On basis that offer amended to pay on thirty-three million of expenditures $59,280,000 And $39,736 sinking fund for 44 years 1,748,384 Total 61,028,384
2. Operation, repairs, and maintenance of spillway gates estimated at $75,000 per annum, total for 50 years, $3,750,000.	*2.* Operation, repairs, and maintenance of spillway gates $35,000 per year for 50 years, total, $1,750,000.
Headwater improvements in Tennessee River: Agrees to pay such part of annual charges for interest, maintenance, and depreciation as Federal Power Commission may determine equitable.	Headwater improvements in Tennessee River: Pays nothing.
Locks and navigation facilities: Agrees to furnish free such power as necessary to operate.	Locks and navigation facilities: Same except limited to 200 horsepower.
Power at cost for fertilizer.	Power at cost for fertilizer.
Summary: No. 2 rental $96,800,000 Repairs, etc 3,750,000 Total 100,550,000 Saving for 50 years 37,771,616	Summary: No. 2 rental $61,028,384 Repairs, etc 1,750,000 Total 62,778,384
$860,000 of interest on the $17,000,000 of expenditures made prior to Ford offer and on the value of the Sheffield steam plant if invested to yield 4 per cent simple interest will amount at the end of 50 years to $62,600,000; with compound interest as proposed by Mr. Ford it will amount to more than $80,000,000.	Amortization payments, $39,736 annually for 44 years, which, if invested to yield 4 per cent simple interest, will amount at the end of 50 years to $3,321,929. With compound interest as proposed by Mr. Ford it will amount to $3,900,000.
Dam No. 3.	*Dam No. 3.*
3. Leased for 50 years; no right of renewal; Government has option either to build or not to build.	*3.* Leased for 100 years with preferred right of renewal, Government required to build.
Rental for 50 years (Government exercising its option to install all units), $44,600,000.[2]	Rental for 50 years $44,480,000 And $7,010 sinking fund for 44 years 308,440 Total 44,788,440
Operation, repairs, and maintenance of spillway gates assumed; estimated on basis of Dam No. 2, at $75,000 per annum, total for 50 years, $3,750,000.	Operation, repairs, and maintenance of spillway gates, $20,000 per annum for 47 years, total, $940,000.

[1] This rental will be reduced if Government sells steam plant or company erects units as indicated above, by 4 per cent on such amounts.

[2] This rental will be reduced if company erects units as indicated above by 4 per cent on such amounts.

Headwater improvements: Agrees to pay as above. Locks and navigation facilities: Agrees to furnish free such power as necessary to operate.	Headwater improvements: Pays nothing. Locks and navigation facilities: Same, except limited to 100 horsepower.
Summary:	Summary:
Rental $44,600,000	Rental $44,788,440
Repairs, etc 3,750,000	Repairs, etc 940,000
Total 48,350,000	Total 45,728,440
Saving for 50 years 2,621,560	
Total savings on 2 dams for 50 years:	
No. 2 $37,771,616	
No. 3 2,621,560	
Total 40,393,176	
If for 100 years, payments to Government:	If for 100 years, payments to Government:
No. 2 $214,100,000	No. 2 $132,515,184
No. 3 102,100,000	No. 3 97,078,940
Total 316,200,000	Total 229,594,124
Saving on two projects for 100 years. 86,605,876	

OTHER PROVISIONS.

Rates and earnings subject to regulation; all property subject to recapture by Government at end of 50 years at original cost, not exceeding fair value.	Rates and service not subject to regulation; no right of recapture, even if at war.
Offers $4,500,000 for steam plant at Muscle Shoals, leaving Government with both nitrate plants, costing about $80,000,000.	Offers $1,527,512.75 for both nitrate plants, including steam plant and Waco quarry.
Devotes $1,000,000 to research.	No definite amount devoted to research.
Profits regulated by public authorities.	Profits not regulated.
Offers to install at its expense additional units in Dam No. 2 costing $5,000,000.	Requires Government also to acquire site for new steam plant and right of way about 100 miles in length to serve as right of way for transmission and transportation purposes, and erect steam plant and transmission line to Muscle Shoals at cost of $3,472,487.25.
May erect Dam No. 3 at its expense, less cost of navigation improvement, costing company about $16,000,000.	
Total saving in investment (if Government exercises above options), $25,500,000.	
Saving on proposed expenditure for new steam plant, $3,472,487.25.	
Government appropriations required: None.	Government appropriations required: $28,500,000.

(Thereupon the committee adjourned until 10 o'clock to-morrow, January 23.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
January 23, 1924.

The committee met at 10 o'clock a. m., Hon. Julius Kahn (chairman) presiding.

STATEMENT OF MR. E. A. YATES—Resumed.

The CHAIRMAN. Mr. Yates, you were making your statement yesterday and we would like you to proceed.

Mr. YATES. Mr. Chairman, I would like to have permission to have go into the record the letter of January 8, signed by the power companies of the Southeast, to Mr. Merrill, executive secretary of the Federal Power Commission, our thought being that that letter is indicative of the interest that all of these power companies of the Southeast have in this situation. I do not know whether the committee would care to have this letter read. It enters into some phases of the power situation that possibly have not been discussed. If it is the wish of the committee I would be very glad to read it.

The CHAIRMAN. I am under the impression that copies have been furnished to every member of the committee?

Mr. YATES. Yes, sir.

The CHAIRMAN. And they have probably read it.

Mr. YATES. Yes, sir.

The CHAIRMAN. It may be inserted in the record.

(The letter is as follows:)

THE TENNESSEE ELECTRIC POWER CO.,
Chattanooga, Tenn., January 8, 1924.

Hon. O. C. MERRILL,
Executive Secretary Federal Power Commission,
Washington, D. C.

DEAR SIR: We acknowledge receipt of your letter of November 24, 1923 requesting the companies joining in this letter to advise you concerning the price that could probably be secured for electric energy available on completion of Wilson Dam, Muscle Shoals, in July, 1925.

In response, the undersigned companies submit the following plan for utilizing the hydroelectric power at Muscle Shoals, which would permit the use of a substantial part of the power for the production of fertilizer; would place the Muscle Shoals power under the protection and regulation of the Federal water power act; would enable the Government to collect during the 50-year period approximately $10,000,000 rental, and still retain ownership of all its properties.

The power transmission lines in the Southeastern States of Tennessee, Georgia, Alabama, North and South Carolina, are interconnected in a superpower system which permits of the interchange of power from one company to another, and thus an excess of water power at any point is made available to meet the public needs at any other point on the system. The Government steam plant in the Muscle Shoals district for several years has been operated under temporary lease for the benefit of the entire superpower system, from which power is furnished for use in Alabama, Georgia, and in the Carolinas, an extreme distance of over 600 miles from Muscle Shoals.

Government engineers have made several reports of the best method of utilizing the Muscle Shoals power. In the first report (1913), it was recommended that Congress undertake the power development in cooperation with a power company with the view of coordinating the widely varying water flow of the Tennessee River, with water powers on other rivers in Alabama. (H. Doc. 20, 63d Cong., 2d sess.) The great variation in water flow at Muscle Shoals would thus be equalized and it was shown that the power produced by this plan would be at least twice the power produced at Muscle Shoals without such coordination. This recommendation was again made to Congress in 1916 (H. Doc. 1262, 64th Cong., 1st sess.), but action was suspended until it should be decided whether the Muscle Shoals power would be utilized for a nitrate plant.

Again in 1921, it was recommended in a report by Government engineers, submitted through the Chief of Engineers to the Secretary of War, that the best method of utilizing this power in the interest of the public of the South was to coordinate it with the southern superpower system, thereby enabling the companies to supplement the Muscle Shoals power by building storage developments on

various streams and steam plants in the coal fields; the recommendation being as follows:

"144. The best economy and reliability can not be secured by any one development, whether it is hydropower by flow of steam, or by storage, or steam power, but will be obtained by suitable combination of these three different sources, and by the interconnection of the systems supplied by them. Muscle Shoals has been selected by the Government as favorable location for the production of cheap power. The proposed design will furnish 100,000,000 kilowatts of prime power and 200,000 kilowatts of second-class power in an average year. The steam plant of 60,000 kilowatts which the Government has installed at Muscle Shoals is capable of converting a portion of the second-class power into time power. But this combination with a steam plant at Muscle Shoals, regardless of whatever economy may result, can not be, broadly speaking, as favorable for all interests, either the Government interests or private interests, as a combination of the Muscle Shoals scheme and hydropowers with an interconnected group of public utilities systems as described in this report. To segregate the Muscle Shoals power facilities from the other systems of the country is contrary to the policy recommended and strongly advocated, that is, of interconnecting all of the efficient going power systems and jointly operating them for maximum economy. The same principle which works for increased economy by interconnecting the public utility power systems of the Southern States applies to a further interconnection including the Muscle Shoals plants, and in the interest of cheap and reliable power the law should be changed and the interconnection and joint operation of all the developed powers could be provided for." (The Situation During the War, pp. 264–265.)

Large storage reservoirs are now in existence and others are planned under construction in Tennessee, Georgia, Alabama, and the Carolinas, all of which will be connected with this superpower system. These developments, together with the steam plants in the coal fields, will permit of the use from year to year of increasing amounts of the secondary power at Muscle Shoals.

The entire Muscle Shoals power can be absorbed in the South within a period of not exceeding 10 years from the completion of the project. This would involve its transmission to power-consuming centers, including the adjacent and intermediate territory of Memphis, Chattanooga, Knoxville, and Nashville, in the State of Tennessee; various communities in Georgia and in the Carolinas, extending as far eastward as Wilmington; Birmingham and Montgomery and other sections of Alabama; and with a further extension of the superpower system can be made available in the Mobile and New Orleans districts and in the State of Mississippi and portions of Florida, including the port city of Pensacola.

To carry out this plan one or more of the undersigned would be prepared to submit a proposal which would contemplate the organization of a company to ease the plant for a term of 50 years under the terms of the Federal water power act, and would agree to pay a rental to the Government sufficient to meet all interest charges on expenditures on the project to the time of its completion, including the $17,000,000 expended during and just after the war.

The total expenditure, we understand, will be approximately $45,000,000 on the assumption that the Government installs eight generating units on the hydro plant, to which should be added $4,500,000, the present value of the Government steam plant at Muscle Shoals, making a total of approximately $50,000,000 as the basis for interest charges. This interest return, therefore, taken at the Government rate of 4 per cent, amounts to approximately $2,000,000 per annum, which the licensee would be prepared to pay. If the Government installs additional power units beyond eight, the return to the Government should be increased accordingly. If the Government desires to sell the steam plant mentioned, one or more of the undersigned would be prepared to purchase the same at $4,500,000 on terms satisfactory to the Government. The rental for the first six years should be at the rate of $300,000 per annum; for the next four years $1,500,000 per annum, increasing the following year to the maximum rental.

During the first few years of the lease it would be necessary for the power companies to expend not less than $10,000,000 in new lines, additional units, and other equipment necessary to transmit and deliver the power to various parts of the South. In addition, the licensee would assume all the obligations of the Federal water power act; would relieve the Government of the expense of providing additional power units in excess of eight, and the responsibility of operating and maintaining the power plant throughout the lease period, all of which would be assumed by the licensee. The licensee would also supply the

necessary power to operate the Government locks without expense to the Government, the latter to operate the locks.

The license should provide that whenever the safety of the United States demands, the United States would have the right, as more fully provided in the Federal water power act, to take over and operate the project covered by the license for the purpose of manufacturing nitrates, explosives, or munitions of war, or for any other purpose of involving the safety of the United States, for such length of time as should appear to the President necessary for such purposes.

After completion of the necessary transmission lines connecting Muscle Shoals with the distribution systems of the South, such as the plant outlined contemplates, practically the entire resources of the Southern States would thus become available to the Government whenever the national safety requires.

The project covered by the license would be subject to recapture by the Government at any time during the license period, or at the end of 50 years under the terms of the Federal water power act.

In the case the Government desires to sell the entire hydroelectric power plant at a fixed sum, as suggested in the message of the President to Congress, we beg to say that one or more of the undersigned will be prepared to submit such a plan of purchase, the works so purchased to be operated under the Federal water power act.

Under the plan proposed, ample provision will be made for the supply of electric energy for the manufacture of fertilizer at Muscle Shoals, such energy to be supplied at actual cost to the licensee.

We recognize that navigation of the Tennessee River is an important element in this general program, and therefore, Dam No. 3 in the Muscle Shoals section of the river and additional dams farther up the river, should within a reasonable time be constructed. If this power is introduced into public service, power demands of the zone surrounding the Muscle Shoals district will increase so rapidly that the additional power from this source can be placed in public service within a reasonable time, and those interested in that project are prepared to go forward, either as a purchaser of the power from the Government under the Federal water power act, the developments to be financed by the Government, or to finance the projects and construct the same under the Federal water power act, suitable recognition to be given the navigation features involved in this project.

There is a large demand in the South for power and it is continually increasing and we suggest that if the Government desires to proceed along the lines suggested in this letter, it should be done as quickly as possible so as to coordinate the development at Muscle Shoals with other large developments which are either under way or will shortly go forward in various parts of the South.

Yours very truly,

Columbia Electric Power Co., Harry H. Hunt, president; Carolina Power & Light Co., E. W. Hill, vice president; Yadkin River Power Co., Raymond H. Smith, vice president; Ashville Power & Light Co., Wm. Darke, vice president; Carolina Electric Power, president; Memphis Power & Light Co., T. H. Tutwiler, president; Alabama Power Co., Thomas W. Martin, president; Central Georgia Power Co.

Mr. YATES. I would like to add, in the proposal that has been made, that the proposal is joint by these power companies as a group.

The CHAIRMAN. It is signed by three power companies?

Mr. YATES. Yes, sir.

The CHAIRMAN. How many companies do you assume are behind it?

Mr. YATES. Well, I assume there will be interested in this and ultimately receive benefits from it all the power companies who signed the Merrill letter.

Mr. SPEAKS. Nine of them?

Mr. YATES. Yes; and there probably will be some power companies in Mississippi who will receive the benefit. They have discussed this situation with us.

Mr. WURZBACH. Would they all sign the contract if a contract was entered into with the Government?

Mr. YATES. I am not so sure of that, because it would probably be only the the companies whose lines are adjacent and whose lines run to Muscle Shoals, because the other companies are dependent on the adjacent companies for the energy they get from Muscle Shoals.

Mr. WURZBACH. Those three companies that made the proposal; they would sign the contract?

Mr. YATES. Yes, sir. And I would like to say no one company would have a majority interest in this group company. They would all be in the minority.

I have distributed some maps showing the present situation in the States of North and South Carolina, Georgia, Alabama, and Tennessee, with respect to the high-tension transmission lines and the generating plants of the power companies in the Southeast. This has been given out in order that you gentlemen may see the network of lines, some of which run now to Muscle Shoals and which will permit of the use of the Muscle Shoals power in this territory; and, also, with the building of a number of radial lines out of Muscle Shoals in all directions, while the capacity is not present to take up the total output of Muscle Shoals at the present time, a number of new lines will permit the absorption of this power to the power companies to distribute it to the communities to the South, the Southwest, and West.

This interconnection is largely the result of economics. As has been explained here, many of the rivers of the South are like the Tennessee River, that is, there is an abundant amount of water during certain months of the year, and during the three months of low water, there is a small amount of power and it has been found that, with these companies interconnected, great value can result in the coordination of these plants.

It has been found that there might be water in Georgia or Tennessee which would be running to waste and one of the power companies of the other States would be burning coal and, with the interconnection, of course, the conservation of coal and the stopping of that waste is immediately effected.

We have to-day under lease—I say "we," because it has been the power companies of the Southeast—the 60,000-kilowatt steam plant of the Government at nitrate plant No. 2. We have had this for two years and each year we have operated it to the capacity of the transmission lines outgoing from that station. By a process of relaying power from one company to the other, the effect of the Sheffield steam power in the low-water season has been felt as far as North Carolina. In other words, power has been available in North Carolina by reason of the use of the Sheffield steam plant. This is over 600 miles away and it is simply indicative of the method by which the power from the hydroelectric plants at Muscle Shoals could be absorbed to the communities in the Southeast.

As you gentlemen understand, the water powers are above the so-called fall line of the mountains, the line where the mountains meet the coastal plain, and Mississippi, southern Alabama and western Tennessee are below the fall line, and if they are ever to get the benefit of hydroelectric power, they will have to get it from Muscle Shoals, because that is very nearly at the southwest end of that range.

As indicative of the market for power, the power companies in the Southeast now have extensive transmission systems; they know from past experience what the growth of their business has been. We know that last year, 1923, the generation in kilowatt hours of these companies was something like 3,000,000,000 kilowatt hours of energy. We know that annually there is a normal growth to this demand and that, in the past six or eight years, it has averaged 15 per cent yearly, and on this basis we can say that in the next 10 years or by the time Dam No. 3 would be completed, there would be a demand of approximately six and a half billion kilowatt hours to seven billion kilowatt hours in this section. These statements of growth are based on normal expansion. They do not include the energy that will be required for railroad electrification, nor do they include to any extent the energy that will be required for electrochemical work.

Mr. MCKENZIE. Mr. Chairman, might I ask Mr. Yates a question there, in order that it may be connected up in the record?

The CHAIRMAN. Yes.

Mr. MCKENZIE. Is it your judgment that the demand for electric current would be so great in the future that the price of the current will tend to rise rather than to go lower?

Mr. YATES. I would say, Mr. McKenzie, not in the immediate future. There is a limitation, naturally, to the amount of water power. The growth of the demand, particularly in the South, has been so remarkable for energy that no one can foresee more than 10 years ahead what that demand will be. Now, some day when the water power will have been developed and when the people are dependent on power possibly produced by coal, the price is going up. When that will be I can not say; but I will say that the throwing into this whole situation this energy from Muscle Shoals will push back that day by quite a number of years.

Mr. McKENZIE. My reason in asking you that question was to lay the foundation for asking you another.

Mr. YATES. Yes, sir.

Mr. McKENZIE. Now, if it is true that the demand in the future will be sufficient to warrant the increase of the price for current, then applying that to your proposed plan of having a water power company control the current at Muscle Shoal and to sell current to a fertilizer company at cost, is it not apparent that there is a possibility that the price of the current for the power would be so enhanced that it would be utterly impossible for a fertilizer company to manufacture fertilizer with that power, at a profit? And that being true, would not the fertilizer company go out of business; whereas, on the other hand, in the Ford proposition there is an absolute requirement that he utilize that power for the manufacture of fertilizer. Now, what do you think about that?

Mr. YATES. I am glad you brought up that point, Mr. McKenzie.

Mr. McKENZIE. I would like to have your views.

Mr. YATES. Because, in our proposal, it is contemplated that the price for fertilizer is fixed absolutely on the amount of money we pay to the Government for that power, plus the proper charges for operation and other charges that go in. It has nothing to do with the cost of the power of these systems. It will never increase unless the rental, so-called, is increased by the Government. It is not subject to this other situation. That power is put away during the life of the lease for the actual cost of that power at Muscle Shoals, irrespective of the other situation.

Mr. SPEAKS. May I ask a question, Mr. Chairman?

The CHAIRMAN. Yes.

Mr. SPEAKS. As I see the matter, it is about like this: Here is a great national resource which should be conserved for the benefit of all of the people of the country, for the Nation. There is a difference of opinion as to whether it should be managed and operated as a governmental enterprise or be turned over to private parties. We probably never will have anything done if we wait to determine that, and, in order to push it along, it is thought advisable to have some private agency operate or administer this great public resource. Now, do you not think there should be an effort made and a provision whereby the interests of the people could be safeguarded, so that never could the parties who were managing and conducting this affair, do more than exact such prices as would be fair to the people, as well as to the operating agencies?

Mr. YATES. I think that is correct.

Mr. SPEAKS. In other words, you should not have a free hand, because of the necessities of the people and the demand for power, to take advantage of the opportunity to overcharge or to charge more than the Government intends you ever should charge?

Mr. YATES. I would say, in respect to that, we are under the regulation of the public service commissions of the several States with respect to rates; we are also under regulation by the Federal Power Commission. The license would be granted by the Federal Power Commission.

Mr. HILL of Alabama. Of course the Ford Co., whatever its name may be, having a $10,000,000 stock, if it enters into the utility business and sells power, would be subject to the same regulatory bodies?

Mr. YATES. I imagine it would; yes.

Mr. WAINWRIGHT. Mr. Yates, as you understand it, who would have the right, as the law stands to-day, of fixing the rate you could charge for power—the Federal Power Commission or the public utility commissions of the several States?

Mr. YATES. If the State public utility commissions do not function, it is my understanding the Federal Power Commission automatically functions.

Mr. WAINWRIGHT. Would not the Federal Power Commission have jurisdiction in any event?

Mr. YATES. I do not know just how far they go; but, nevertheless, if the one does not function the other does.

Mr. HULL. That is a very interesting subject. As I understand it—perhaps I am wrong—you would be under the Federal Power Commission's license, and of course they and the State commissions regulate the rate; is that true?

Mr. YATES. Yes, sir.

Mr. HULL. Now, is this true: As I understand it, Henry Ford is not to be under the Federal Power Commission?

Mr. YATES. That is correct; yes, sir.

Mr. HULL. Then how would he be regulated?

Mr. YATES. I do not think he would be, unless he went into the public utility business to sell power.

Mr. HULL. He would not be regulated?

Mr. YATES. No, sir.

The CHAIRMAN. Have you given this matter of regulation of rates by the various States of the country any considerable attention?

Mr. YATES. Yes, sir.

The CHAIRMAN. You know out in the West the railroads use power for running their roads a thousand miles, or more?

Mr. YATES. Yes, sir.

The CHAIRMAN. That is notably true in the Northwest?

Mr. YATES. Yes, sir.

The CHAIRMAN. Now, is that done under general laws of the Government or under special laws made by the communities themselves?

Mr. YATES. We are subject, all our rates, for the sale of power are subject to approval by the public service commission of the State. If we saw the opportunity, or if it were advantageous, or if we wanted to start an industry, we could make an application to the public service commission to grant a special rate. We have negotiations on with some of the railroads; we have discussed it with them, with respect to electrification. There is a place where a special rate to meet the special conditions might be acquired; but it is subject to approval by the public service commission.

The CHAIRMAN. I see.

Mr. WAINWRIGHT. Do you mean to say there is no Federal rate-fixing power to-day? This being somewhat of an interstate proposition, do you mean to say that to-day the rates are all fixed at the point where the power is furnished, without reference to the supplying of the power over an entire system?

Mr. YATES. I would suggest Mr. Martin may possibly know more about that subject and that he might explain it.

Mr. MARTIN. Under the Federal water power act there is reserved, of course, in the Federal Power Commission the right to regulate the service, the rates, and security issues of all licensees. Now that right of regulation is exercised where there is no law of the State dealing with any one of those subjects and, in another case, it is exercised where the power goes into interstate commerce and the States can not agree among themselves on any of those questions. Then that automatically puts the power of regulation in the Federal Power Commission. That is the law as it stands now.

Mr. FROTHINGHAM. The power of the Milwaukee road, which is the chief one, I suppose, to which the chairman referred——

The CHAIRMAN. Yes.

Mr. FROTHINGHAM (continuing). Would be interstate commerce and subject to control of the National Government?

Mr. MARTIN. Yes, sir, if the States involved could not agree, and it is quite likely that question is coming up, it automatically falls to the Federal Power Commission for determination.

Mr. WAINWRIGHT. Do you think that same rule applies here?

Mr. MARTIN. Yes, sir, Mr. Wainwright.

Mr. FROTHINGHAM. This is a 100-year lease, and it is only a 50-year lease that comes under the Federal water power act, is it not?

Mr. MARTIN. Whatever their proposal is.

Mr. FROTHINGHAM. I mean the other offer for 100 years would not be subject to the water power act, and how would they regulate them?

Mr. MARTIN. There is no scheme of regulation now prescribed for that situation.

The CHAIRMAN. Proceed, Mr. Yates.

Mr. YATES. I think it might be well to state, in a general way, the investments in property that these companies have in public service, in serving industries, and I mean large industrial users. I do not speak of the investment in street railways and their gas properties, nor the retail electric business supplying the houses in the various cities; I am speaking of their generating plant and their main transmission lines which transmit this energy to the centers where it is used. Approximately the investment of these companies in 1923 was in excess of $200,000,000.

The CHAIRMAN. $200,000,000?

Mr. YATES. In excess of $200,000,000, the investment of these companies in 1923, in generating plants and transmission lines, not including the retail and the small operations. In general, that shows approximately the cost of the properties that are shown on this map. Basing the normal growth at 15 per

cent, it is anticipated in 1936, by the time No. 3 Dam would be in operation under the Ford proposal, that this investment would be in excess of $400,000,000. This money, of course, is all devoted to public service and is subject to regulation as to the return.

I have made an analysis of the power cost to Mr. Ford, on the basis of his offer for Dam No. 2 and Dam No. 3, to be completed by the Government, and on the basis of his acquisition of the Sheffield steam plant and the building by the Government of a new steam plant on the Warrior River for him and in working up the costs of power on this basis I have been very liberal as to the operating expenses for running these plants and the amount of coal that would be required to be burned in the steam plant to supplement the water in the low periods. These figures show—they are conservative and they are safe—that in 1926, at an expense of $500,000, Mr. Ford will have available in excess of 600,000,000 kilowatt hours of energy at a cost of less than 1 mill per kilowatt hour; and in 1936, when No. 3 dam will have been completed, he will have, at an expense of $3,368,000, a total of 1,700,000,000 kilowatt hours of primary energy available to him at a cost of 1.9 mills per kilowatt hour. The cost in 1936, as set up, is figured only on primary power; that is, the power that is possible 100 per cent of the time. Assuming that a certain amount of coal will be burned, based on the water flow for the last 50 years in the Tennessee River, and it is a close average, 1936 will be the maximum price he would pay for primary power. As the years go on, as the storage reservoirs are built in the headwaters of the Tennessee River, without expense to Mr. Ford and without any obligation to him to pay part thereof, his price per kilowatt hour of energy is going to be steadily reduced. His annual payments will remain the same, but the volume of energy available to him will be increased.

The industrial users of power in the whole Southeast, the cotton mills, the coal operators, the iron miners, everyone who uses power in the Southeast and buys it from the power companies—in some cases they are located there because of the natural resources; in other cases, they have been located largely because of labor conditions and the attractive rate for power—the users of power in the Southeast—industrial users—are now paying $18,000,000 per annum for power, for an equal amount of power that Mr. Ford will secure from these projects in 1936 at a cost of $3,369,000. In other words, without regulation, Mr. Ford in his business will have the advantage over all these cotton-mill operators and all these miners and all the other industries in the Southeast to the extent of $15,000,000 a year; he will have the advantage from a competitive basis on the actual power cost.

Mr. SPEAKS. About what would that cost be; how much per kilowatt hour, did you say?

Mr. YATES. The average price that industrial users of power pay in the Southeast is 1.1 cent. Mr. Ford, in 1936, will get his power at a cost of 1.9 mills. I am speaking, in both cases, of primary power.

Mr. SPEAKS. To get it in some form or terms that might be understood, how many horsepower or kilowatt hours could be developed by all of these various power companies that are shown on the map here? Have you approximated that?

Mr. YATES. Yes, sir.

Mr. SPEAKS. What would it be?

Mr. YATES. They developed 3,000,000,000 kilowatt hours in 1923. That is 4,000,000,000 horsepower hours. Our offer for power will not only provide abundant power for fertilizer at Muscle Shoals at actual cost, but it will also assure the equitable distribution of this remaining power to all these industrial users, under regulation by the several States and the Federal Power Commission. The headwater improvements as they may be made, either by private capital, under the Federal Power Commission, or by the United States, under our proposal, will be charged in part to us and, according as the benefits accrue to us and as may be determined by the Federal Power Commission.

Mr. HULL. You have told us what this power would cost Ford. Have you told us what it would cost you, under the contract that you proposed?

Mr. YATES. The prices we pay to the Government, as I explained in the analysis yesterday, are higher. Our prices would be somewhat higher than Mr. Ford's; but, as I have explained, whatever the price is, the sale price is subject to the regulation of the State commissions.

Mr. HULL. Yes; but the point I make is you have told the committee what it would cost Henry Ford.

Mr. YATES. Yes, sir.

Mr. HULL. You have told us what it would cost under his contract.

Mr. YATES. Yes, sir.

Mr. HULL. Especially, you said, in 1936.

Mr. YATES. Yes, sir.

Mr. HULL. Now you have not, as I understand it, told us what it would cost you specifically per kilowatt. If you are not prepared to do that now, will you put it in the record?

Mr. YATES. I have not figured it exactly. The cost to Ford was figured exactly. It is a little more. If his is 1.9 mills, it will be over 2 mills.

Mr. MCKENZIE. Mr. Yates, do you have any fear that the competition by Mr. Ford, in case he should undertake the sale of the surplus energy, would in any way affect your business?

Mr. YATES. Well, no; no great fear. I do not think so.

Mr. MCKENZIE. Is not this a possibility, that under the Ford offer, according to the testimony which has been presented to this committee, he will probably undertake a losing proposition in the manufacture of fertilizer, at least for a number of years, and would it not follow that any profit that he might perhaps make, ordinarily speaking, in the sale of the surplus current, would be taken up very largely by the losses on the manufacture of the fertilizer product which he is bound to produce under his contract?

Mr. YATES. Well, it would be rather hard for me to see, Mr. McKenzie, how he could lose as much as $15,000,000 a year in fertilizer. In other words, the advantage he has over his competitors, in the price of power, is such that I do not see how he could.

Mr. MCKENZIE. You have read all of the testimony that has been taken before the Committee on Military Affairs, I presume, in connection with this matter?

Mr. YATES. I have read some of it; yes, sir.

Mr. MCKENZIE. Well, in the light of that testimony, would not any conservative business man say that at least Mr. Ford is taking a gamble on his proposition?

Mr. YATES. Well, of course, I can not look at it that way, Mr. McKenzie. You take the whole Ford offer, and his liability and the way he is bound to it, or not bound to it—I can not see that.

Mr. MCKENZIE. You have stated that you do not, to any very great extent at least, view with alarm the situation, so far as Mr. Ford's being a competitor is concerned in the manufacture and sale of power?

Mr. YATES. Well, we are vitally interested in the manufacturing industries in the South. We have a department that handles that; we advertise nationally; we send men all over the country to get this man and that man, in order to use the power. Now, we say we have attractive rates; we naturally are not anxious, from that viewpoint, that a man might come there and have power rates which would be so much below the rates that these other people have got to pay, every industry in the South, that it will make a difference within 10 years of millions of dollars annually.

Mr. MCKENZIE. Ultimately who will benefit by that?

Mr. YATES. Well, I presume Mr. Ford will benefit by it; I presume he will.

Mr. MCKENZIE. I agree with you on that; but will not the people also be interested in that?

Mr. YATES. Well, the people are interested in our proposal, and they will know what is coming to them out of our proposal, because we are subject to regulation; Mr. Ford is not. Now, if he wants to give his money away, all right.

Mr. MCKENZIE. You do not wish us to understand now, your contention is that, if Mr. Ford sells his surplus power for commercial uses, he would not thereby bring himself immediately, or his company, under the Public Utility Commission of the State of Alabama?

Mr. YATES. Oh, unquestionably he would.

Mr. MCKENZIE. There is no doubt about it?

Mr. YATES. No, sir.

Mr. MCKENZIE. Are not those public utility commissions organized or created not only for the protection of the people, but also for the protection of the corporations or individuals serving the people?

Mr. YATES. That is true.

Mr. MCKENZIE. And is it not also true that the public utility commissions will not permit one corporation to destroy all of the corporations in the State, serving the people in a like manner, for the reason that when they are destroyed then the destroying corporation can step up and rob the people? Is not that true?

Mr. YATES. Well, Mr. McKenzie, I am not discussing this from the basis of Mr. Ford going into the power business and distributing power and the fact he would be under public regulation in that event. I am speaking of him as a manufacturer who may put up cotton mills, may make aluminum, may make a hundred other things—I do not know—but what power he uses, if he uses it all in his industry, it would be at a price far below what other industries are paying for power in the Southeast now, and it would not be under the control of any commission.

Mr. MCKENZIE. Of course, I do not remember, but do you recall any instance where the manufacturers of the South are protesting against Mr. Ford's offer?

Mr. YATES. Well, I do not know that I do. There may be.

Mr. MCKENZIE. Of course, I want to say this, very frankly: that it is not the purpose of this committee, nor the purpose of this legislation, to destroy enterprise or business in the South, or to destroy anybody, so far as that is concerned; but we are viewing this proposition as it stands alone and trying to judge whether or not it is a good thing for the country and the Government, having that in mind, and not with any desire to interfere with or destroy your corporation or any other corporation that may be serving the people.

Mr. YATES. I would like to say I saw in the New York Tribune, several weeks ago, a whole section devoted to North Carolina and an invitation to industry all over the South to come to North Carolina and, among the advantages mentioned, were attractive power rates.

It just seems to me that no one person should be given the advantage over his competitors to this extent, in the price of power.

The CHAIRMAN. When Mr. Mayo was before the committee, he stated emphatically that Mr. Ford did not propose to sell any power. Do you recall that? This is exactly what occurred before the committee:

"I am trying to explain that your premises are all wrong."

This is what Mr. Mayo, who represented Mr. Ford, said:

"You seem to be analyzing this subject from a public utility point of view, but it is not Mr. Ford's intention to start a power company for the sale of power; that is not his intention at all."

So that we have it from Mr. Ford's own representatives that they do not intend to sell that power.

Mr. YATES. Well then, they would not be under public service commission regulation?

The CHAIRMAN. No.

Mr. YATES. I should not judge they would be.

The CHAIRMAN. No; because they probably intend to use themselves all the power that they create down there. They are not going to sell it to anybody.

Mr. YATES. That is just what I was trying to say, that in using all this power, this advantage is created to him over his competitors in the whole Southeast as regards the price of power.

The CHAIRMAN. Well, of course, that is a matter for the committee to take up.

Mr. YATES. Yes, sir.

Mr. GARRETT. But if it be true that Mr. Ford does not propose to sell power to any other industries and if it be true, as you state, that he would get the power, for whatever purpose he might wish to use it there, cheaper than power is now being created by the Alabama Power Co., do you take into consideration the further fact that the companies that now make the power and sell it to other industries are not proposing as Ford does to take the plants of the Government that have been established for the purpose of making nitrates and keep that in a standby condition all the time, subject to rules and regulations to be prescribed by the War Department, to be taken over at any time the Government might wish to take them over, in case of emergency, and he also binds himself up in the use of this power, regardless of whether he makes a profit or does not make a profit, that he will make fertilizer for the farmers of the country during the entire life of his lease?

Mr. YATES. We expect to make fertilizer, Mr. Garrett.

Mr. GARRETT. But you propose to make fertilizer by a corporation separate and apart from the corporations that are now making the power?

Mr. YATES. Our fertilizer proposal will be in, Mr. Garrett, and I would like to let it speak for itself.

Mr. WURZBACH. Mr. Yates, with reference to the excessive power available to Mr. Ford, if his offer should be accepted, over and above that used for fertilizer, you say he would have an advantage over every other industrial enterprise in the South, that is, if he were to use that excessive power, that surplus power, in his own private enterprise?

Mr. YATES. Yes, sir.

Mr. WURZBACH. Now, what industrial enterprises in the South have you in mind with which he would be able to successfully compete?

Mr. YATES. I have not any in particular. I speak in general of the power bill that the large wholesale users of power pay in the year for an equal amount of power Mr. Ford will get.

Mr. WURZBACH. You mentioned cotton gins.

Mr. YATES. Well, there are a lot of cotton mills. It is a big industry in the Southeast.

Mr. WURZBACH. There would not be any danger there, because you could not have a great big cotton gin at Muscle Shoals.

Mr. YATES. A cotton mill.

Mr. WURZBACH. A cotton mill?

Mr. YATES. Yes, there are thousands of them in the South, and the electric power is a large element of their manufacturing cost, and they have been attracted to the South largely by the cheap rates for power and labor conditions.

Mr. WURZBACH. That would give a cotton mill located at Muscle Shoals an advantage over cotton mills located at other places in the South?

Mr. YATES. I think it would.

Mr. WURZBACH. And you think it would tend to monopolize that industry in the hands of Mr. Ford, if he chose to use the advantage in that way?

Mr. YATES. I hesitate to say how far he would go.

Mr. WURZBACH. I mean he could do that?

Mr. YATES. I am just setting up the advantage he has over these other people, in power costs.

Mr. WURZBACH. I am not discussing that with you; I do not want you to express your opinion as to whether or not Mr. Ford would do that, but the question is whether he could do that. You think he could do that? You think he would have an advantage in that way?

Mr. YATES. I think the advantage in the cost of power to that extent is extremely valuable.

Mr. WURZBACH. Do you know whether any cotton mills have raised that objection to the Ford offer, or not?

Mr. YATES. Well, as I say, I do not believe I know of any specific cases where protests have been made; that is true.

Mr. GARRETT. Do the power companies now make the same rate to all industries that they serve?

Mr. YATES. No, sir.

Mr. GARRETT. Do you not give a better rate to a large industry, consuming more power, than you do to a smaller industry?

Mr. YATES. Yes, sir.

Mr. GARRETT. Suppose then, in your territory you had a cotton mill, an immense cotton mill, taking a great deal of power, and there could be organized a smaller cotton mill taking less power; would not you discriminate in your rates in favor of the larger cotton mill?

Mr. YATES. Slightly. It is on a basis of a fixed, established, sliding schedule. As the demand and use goes up, the unit price drops a very little; but it is a fact that the larger the user the lower his price is.

Mr. GARRETT. Then, that being true, if Mr. Ford should abandon the proposition laid down in his testimony, in future years, if he should find that, after making fertilizer and supplying his other industries, he would still have a considerable horsepower to dispose of, if some infant industry should desire to be established in that community and he should make them, the infant industry, the same rate that these companies are now making the greater industries, he would not be doing any great injustice to the country, would he?

Mr. YATES. Well, you are speaking of this particular one small company?

Mr. GARRETT. Well, any one small company or any number of small companies.

Mr. YATES. To my mind, I do not see how you can tie it down to a small situation. It is a large situation; it is a large block of power and it is cheap power.

Mr. GARRETT. I am speaking of the principle involved.

Mr. YATES. And it will be unregulated.

Mr. GARRETT. Regardless of the question of regulation, you have a regulation now that gives a maximum rate beyond which you can not go, but, under that maximum rate, you say that you discriminate in favor of the larger users of power. Now, if Mr. Ford should discriminate in favor of the smaller users of power, in order to build up some smaller industries in that country, would he be doing any more than you and I would do?

Mr. YATES. No; I do not think he would. I do not like the sound of that word "discriminate."

Mr. GARRETT. Well, it is a discrimination; that is the only word I know to use.

Mr. YATES. I do not like the sound of that word "discriminate," because our rates are published; they are approved by the commission; they are published and they are on a regular sliding scale and everybody knows what they are and anybody can get them.

Mr. GARRETT. We will use the word "differentiate," if you prefer that.

Mr. YATES. Yes; I do.

Mr. GARRETT. We will say "differentiate" in favor of the larger user of power as against the smaller user of power.

Mr. YATES. Yes.

Mr. HULL. As I understand it, your rates are fixed publicly by the commissions of the different States. Is not that true?

Mr. YATES. Yes, sir.

Mr. HULL. You simply charge the rates that they tell you to charge; is that true?

Mr. YATES. In effect.

Mr. HULL. Those rates fixed by the commissions do what is practically the universal rule—make a lesser rate for the larger man; is not that true?

Mr. YATES. Yes; that is true.

Mr. HULL. You could not, under any circumstances, go out and discriminate in favor of John Jones over Bill Smith?

Mr. YATES. No, sir.

Mr. HULL. You simply say if you take so many kilowatts, "That is your rate"?

Mr. YATES. Yes, sir. I would like to say, right there, as showing our interest in industry, that we have during this past winter, this winter, attempted to help Mr. Swan at Anniston on some work he is doing in connection with phosphoric acid fertilizer, and he has been carrying that on for some time. We have some water running away in the winter that is wasted, it runs over the dams, and we went to the public service commission and told them we would like to give Mr. Swan a three-mill rate, which is less than half the regular rate, during the period of high water, in order that he might go ahead, because we were interested in order that he might go ahead with his fertilizer experiments.

Mr. HULL. The public service commission of the State permitted that?

Mr. YATES. Yes, sir. We had to apply to them to get their approval.

Mr. SPEAKS. You mean that was the water going over the spillway?

Mr. YATES. In the winter and spring, in the South, there is generally lots of water and the water is running away, and he might as well have it in a good cause.

Mr. GARRETT. This proposition to take over Muscle Shoals by the various power companies interested in that territory and elsewhere: If your companies should get Muscle Shoals, they would then have control or a complete monopoly of all the power in that part of the country, would they not, practically all the power?

Mr. YATES. I do not think you can call it a monopoly, when it is under regulation.

Mr. GARRETT. They would have the power over it whether it be a monopoly or not; they would have the power?

Mr. YATES. They would have the power for distribution under the direction and regulation of the several States.

Mr. GARRETT. I understand that it is under the regulation of the various States and the national water power act.

Mr. YATES. Well, that is a safety valve, Mr. Garrett.

Mr. GARRETT. But that safety valve blows off, as you say, in favor of the larger consumers as against the smaller consumers.

Mr. YATES. I have not seen it blow off itself.

Mr. WAINWRIGHT. The regulation by the State Power Commission does not in any way prevent lower rates being given than those fixed by the commission? I mean to say anybody who can afford to can supply power at a lesser rate?

Mr. YATES. Well, I do not think we could discriminate.

Mr. WAINWRIGHT. No. What I mean to say is, it is not a rate which everybody must give. If anybody can afford to furnish power at a lesser rate than that fixed by the utilities commission, there is no objection to that.

Mr. YATES. Well, you mean he could make it a percentage of whatever is allowed by the power commission?

Mr. WAINWRIGHT. Yes.

Mr. YATES. I do not see why not.

Mr. WAINWRIGHT. Now, suppose that Mr. Ford does go into the business of power distribution, did you mean to say that he could furnish power commercially to third parties at a less rate than you could?

Mr. YATES. Well, I think the United States would be paying for that power; yes, sir.

Mr. WAINWRIGHT. Yes; but he could——

Mr. YATES. Under these payments.

Mr. WAINWRIGHT. And he could afford to furnish power to third parties at a lesser rate than you could do it?

Mr. YATES. To some extent. We have our lines. I do not know how Ford would operate, but it depends entirely on the relative size of his power company and how much he puts into his business and how much he puts into fertilizer.

Mr. WAINWRIGHT. If he could do it, then it would be that much advantage to the consumers of power generally?

Mr. YATES. Of course, we are setting up this proposition, that we are under regulation; we can distribute this power to the whole Southeast under regulation—give power to the whole Southeast.

Mr. WAINWRIGHT. What I mean to say is, if he could afford, under this arrangement, the proposed arrangement, to distribute power cheaper than you could, it would be just that much greater advantage to the Southeast?

Mr. YATES. I do not know. You would be building duplicate facilities. The lines are there now, the facilities are there now for distribution, and the minute you go into the duplication of those facilities, why, the cost runs up.

Mr. HILL of Alabama. Is not the time coming, really—you speak of transmission lines and things of that kind—is not the time coming when those transmission lines are going to be like railroad lines, a common carrier; that is, they will be used by more than one company—these big transmission lines?

Mr. YATES. Well, I think they are used by more than one company now. I spoke about relaying power from the Sheffield steam plant away up to Raleigh, N. C.

Mr. HILL of Alabama. Over more than one company's line?

Mr. YATES. Oh, yes.

Mr. HILL of Alabama. Just like you would send a freight car over another line?

Mr. YATES. The effect is the same in getting that power up into North Carolina.

Mr. HILL of Alabama. The biggest part of your business is supplying power, is it not; that is to say, you are furnishing it for everything from running a coal plant or an ice plant up to lighting a home? That is the biggest part of your business in the State of Alabama to-day?

Mr. YATES. Yes; industrial power and for home use and street railways.

Mr. HILL of Alabama. And I believe you say Mr. Ford could sell that power cheaper than you could, for such uses as that, if he went into the commercial power business?

Mr. YATES. No; I do not think I said that, Mr. Hill.

Mr. HILL of Alabama. Just what was your statement?

Mr. YATES. I said Mr. Ford would have available power for his own use at Muscle Shoals at a cost per unit far below what other industrial users are paying in the South now for power.

Mr. HILL of Alabama. Would it not be reasonable to expect he could sell that power cheaper, then; it might be the logical conclusion, from your statement.

Mr. YATES. It depends on where he sells it and how much he is going to spend on selling it, whether he duplicates the facilities already created there to deliver it, whether you have parallel facilities created. You take this very bill here, on the building of this steam plant at the Warrior River; it is a duplication of the facilities. You have a transmission line which we own there now; you have a steam plant there. It is a duplication of the facilities; there is one line there, and you propose to build another.

Mr. HILL of Alabama. To say the least of it, he will be able to make the power cheaper?

Mr. YATES. Sir?

Mr. HILL of Alabama. He will be able to make the power cheaper?

Mr. YATES. Well, somebody pays the bill; the Government in this case pays the bill.

Mr. HILL of Alabama. He will make the power cheaper if his offer is accepted, will he not?

Mr. YATES. Make it cheaper?

Mr. HILL of Alabama. Yes; he will get the power cheaper if his offer is accepted?

Mr. YATES. Oh, undoubtedly he will get it cheaper than we can make it. That is what I am trying to say. The cost of our power, in its generation, distribution, and transmission, is all reflected in the price we sell it for. Every taxpayer in the country will pay a little bit toward making Mr. Ford's power cheaper.

Mr. MCSWAIN. I want to ask for some information again this morning, not opinion. I would like to ask if those two gentlemen who represent somebody who proposes to take the power from you for the purpose of manufacturing fertilizer have arrived in Washington?

Mr. YATES. Yes, sir.

Mr. MCSWAIN. Where are they—are they in this room?

Mr. YATES. No, sir.

Mr. MCSWAIN. They are not in this room?

Mr. YATES. No, sir.

Mr. MCSWAIN. Then, are they in Washington?

Mr. YATES. Yes, sir.

Mr. MCSWAIN. Where are they in Washington?

Mr. YATES. They are at the hotel.

Mr. MCSWAIN. Have you seen them?

Mr. YATES. Yes, sir.

Mr. MCSWAIN. Where did you see them?

Mr. YATES. At the Washington Hotel.

Mr. MCSWAIN. They are at the Washington Hotel?

Mr. YATES. Yes, sir.

Mr. MCSWAIN. What are their names?

Mr. YATES. I would prefer not to state.

Mr. MCSWAIN. We want to know; we want information, not opinion.

Mr. YATES. I know; but I have said in every way I could, we were going to have them here, sir.

Mr. MCSWAIN. Are they not coming before this committee?

Mr. YATES. Yes, sir.

Mr. MCSWAIN. Then, where is there any objection to giving their names i they are coming?

Mr. YATES. I prefer not to do it.

Mr. WRIGHT. I want to ask what is the name of the town north of La Grange. Are you familiar with the town north of La Grange, Ga.?

Mr. YATES. Yes, sir.

Mr. WRIGHT. What is the name of that town right to the north of La Grange?

Mr. YATES. Newnan. They have an "m" there in place of an "n."

Mr. WRIGHT. I wish you would have that corrected, because that is where I live. [Laughter.]

Mr. YATES. That is all I have to say, Mr. Chairman.

The CHAIRMAN. Is Mr. Edgar of the Tennessee Power Co., present? We will be glad to hear from you, Mr. Edgar. Will you kindly state your nane to the stenographer and what your business is?

STATEMENT OF MR. B. C. EDGAR, VICE PRESIDENT AND GENERAL MANAGER IN CHARGE OF OPERATIONS OF THE TENNESSEE ELECTRIC POWER CO., CHATTANOOGA, TENN.

Mr. EDGAR. My name is B. C. Edgar; I am vice president and general manager, in charge of operations, of the Tennessee Electric Power Co., with headquarters at Chattanooga, Tenn.

The CHAIRMAN. Did you sign this agreement?

Mr. EDGAR. The agreement was signed for the Tennessee Electric Power Co. by Mr. C. M. Clark, the chairman of its board of directors.

The CHAIRMAN. Now we will be glad to hear from you.

Mr. EDGAR. If the chairman and this committee would like to hear it, I have a list of the directors of our company. I can either give that list to you, or simply make the statement that no man on the directorate of the Tennessee Electric Power Co. is upon the board of directors of either of the other two companies signing the proposal. I think that statement would cover what was asked yesterday of Mr. Yates.

The CHAIRMAN. Yes.

Mr. EDGAR. Mr. Yates has covered very fully the general situation of all of the power companies. I would like to preface my remarks by stating I am not familiar with the fertilizer situation in any of its details and my remarks

must be prefaced with the fact that I am assuming that the fertilizer situation will be taken care of in a manner satisfactory to this committee and, therefore, I will confine what remarks I have to a description of our properties.

The CHAIRMAN. How soon will it be taken care of before the committee?

Mr. EDGAR. I understand it is to be presented to this committee to-morrow or next day. Now, that is simply the information that has been given me, Mr. Chairman.

The CHAIRMAN. But you can not say positively?

Mr. EDGAR. Of my own knowledge; no, sir. I would like to describe in general the extent and operations and, briefly, the system of the Tennessee Electric Power Co. We operate entirely within the State of Tennessee and the central and eastern part of the State. We serve a territory with a population of between 450,000 and 500,000 people. We furnish and distribute power in the cities of Nashville and Chattanooga and supply small communities. We sell power to other distributing companies which furnish power in Knoxville, Tenn., and in several other of the smaller eastern Tennessee communities.

Our output last year was approximately 460,000,000 kilowatt hours. We carried peak loads of approximately 87,000 kilowatts. We assume that by 1928 we will distribute over 800,000,000 kilowatt hours in the territory now served and that we will be required to carry peaks of over 170,000 kilowatts. We estimate further, in 10 years, and assuming an average increase in our load of approximately 15 per cent, which seems about right from past history, that in 1934 our peak loads will be in excess of 300,000 kilowatts and that our output will be in excess of 1,800,000,000 kilowatt hours by 1934.

At the present time we have hydroelectric stations operating on the Ocoee River, on the Tennessee River, at Hales Bar, on the Caney Fork River at middle Tennessee, with a total capacity in excess of 80,000 kilowatts. We have, in addition to this, steam stations at the present time with a capacity in excess of 40,000 kilowatts. We now have under construction a steam plant which will have a capacity of 30,000 kilowatts this year, or 40,000 next year, or in excess of 50,000 horsepower; that is, in addition to the present operating steam capacity. We have under construction an addition to the hydroelectric station at Caney Fork, which will add a hydroelectric capacity of about 15,000 kilowatts, or about 20,000 horsepower.

It can be seen from the fact of the peaks we have carried, due to the demand for hydroelectric energy to serve the industries in our section, that we will soon reach the end of our ability to make enlargements to the present power facilities. In casting about for the next development to be made, we find that the developments on the Tennessee River and its tributaries are now under investigation through the War Department, the department engineers, and although we now have filed with the Federal Water Power Commission an application for a temporary permit for development of power on the Clinch River, two developments, two sites on the river, and one on the Powell River, which are tributaries to the Tennessee, upper river tributaries, those applications will be tied up and will not be heard until a complete survey is made of the entire Tennessee River basin. That is our advice up to date, from the War Department, that no hearings would be had until the entire survey is completed.

That leaves for our consideration to meet the needs of power to take care of the normal growth of business in our State, the taking of a block of power and signing jointly, with the other power companies, this proposal to Congress for the use of power to be developed at Muscle Shoals. If that proposal is accepted, the Tennessee Electric Power Co. would propose to build transmission lines connecting Muscle Shoals with Nashville, which now is the western extremity of our transmission system and is served through one transmission line, all of our power development now being located east of Nashville and there being no possible power development west of Nashville, that being in a flat country, the flat part of the State. We also contemplate making a connection at what we call our Hale's Bar plant on the Tennessee River, which is near Chattanooga, and which would give us a direct connection to what we call the heart of our whole system.

While the Tennessee Electric Power Co. has no interest in the Memphis Power & Light Co., the president of that company, who expected to appear before this committee, is unfortunately ill and I am asked to say that it is the plan of the Memphis Power & Light Co. to build a line from Muscle Shoals to Memphis, so that Memphis may have the benefit of hydroelectric power developed there.

Mr. MCSWAIN. How far is that; what the distance?

Mr. EDGAR. I have not the exact figures. Subject to correction, I would say around 150 miles. I have very little to add to that statement. I said I would be brief, and I must necessarily confine myself to the Tennessee situation.

I have tried to outline the picture of the territory served; I have tried to outline the necessity for power. I have mentioned the fact that the water powers of the eastern part of the State, to which we would normally look, have been tied up during the investigation of the entire Tennessee River Basin; therefore, the logical place to look for power is Muscle Shoals at this time, and Muscle Shoals is the nearest development to supplement the power now being used at Nashville, and I might add that it is possibly the nearest possible hydroelectric development which can serve the extreme western part of Tennessee, particularly Memphis.

I might state that our output in 1923 of 460,000,000 kilowatt hours was delivered pretty generally from Memphis to the eastern limits of the State, not only to the small communities, where it serves for lighting and small power purposes, but also furnished power to large manufacturing industries now located there, and we feel that these industries which now receive the power from us at rates regulated by our commission should be protected in their power supply, and we feel that we are so protecting them in assuring them their future supply, and that we are looking after their interests in making an application for part of the power from Muscle Shoals. And we feel that they—those who have spent their money in the development of the country where they are located—are entitled to that protection through us.

Mr. Chairman, I will be very glad to answer any questions that it may be cared to ask. I think that concludes my statement.

Mr. McKenzie. I just want to ask you one question. You view it from the standpoint of a business man located in the State of Tennessee, having in mind your patrons at the present time and also the prospective patrons you will have in the future by enlarging your plant and by getting a portion of the power from Muscle Shoals so that you can take care of all of your prospective patrons?

Mr. Edgar. Not all of our prospective patrons. It would take care of a small part of our prospective growth. It would take care of the immediate growth and at a time when we are unable to make other developments, due to the tying up of the Tennessee River basin, and I am looking at it from a business standpoint, from our customers' standpoint, and from the standpoint of their protection.

Mr. McKenzie. I am not criticizing you for that, but you are viewing it solely from the standpoint of a man representing a corporation interested in the creation of electric energy and the selling of it to the public?

Mr. Edgar. I am looking at it from that viewpoint, Mr. McKenzie, and the viewpoint of the Government in the matter of a return on its power.

Mr. McKenzie. You are not setting yourself up as a philanthropist, or an altruistic gentleman, or anything of that kind, but as a plain American business man looking at it from the standpoint of the business matter?

Mr. Edgar. I am, and from that standpoint, I am looking at the interests of the farmer as well as anyone else looks after the interest of the farmer, because the development of farms in Tennessee means the development of that territory, and there is not one more interested in the development of the farmers and agriculture and manufacturing industries in the South than the public utilities of the South, because the public utilities can not develop if the farmers and the agricultural industries do not develop along with the manufacturing industries, because they are dependent on it; also, the industries which will be attracted to the South by reason of the availability of the Muscle Shoals power will provide markets for the products of the farmer.

Mr. Hill of Maryland. I do not know whether you have the information I asked for yesterday, or whether you are the proper one to give it, with reference to the proposed right of way?

Mr. Edgar. That is all in Alabama, Mr. Hill, and I do not operate in Alabama at all.

Mr. Yates. I have that information

Mr. Hill of Maryland. You have that?

Mr. Yates. Yes, sir.

Mr. Hill of Maryland. Will you present that this morning or later?

The Chairman. He has been on the stand all morning. Unfortunately, you were not here; but we will call him to the stand to put that in the record.

FURTHER STATEMENT OF MR. E. A. YATES.

Mr. Hill of Maryland. I want to ask if you have had the opporunity to look up the extent and nature of the right of way referred to in Mr. Ford's telegram.

Mr. Yates. Yes, sir. We had an engineer go over the maps and he has given me the figures as follows: If a right of way for a railroad is required, it will be approximately 135 miles long and will cost approximately $100,000.

If a right of way for a transmission line is required, it will be approximately 92 miles and will cost approximately $46,000.

Mr. HILL of Maryland. I thank you very much.

Mr. WRIGHT. It does not concern the Government whether the right of way you speak of is 100 or 200 miles long, or 100 feet wide or 200 feet wide, if it is not to be paid for by the Government, does it?

Mr. YATES. Well, I do not know who is going to pay for it, Mr. Wright.

Mr. WRIGHT. I say if it does not cost the Government anything, the people are not concerned about how long it is or how wide it is.

Mr. YATES. Mr. Hill asked me the question about it——

Mr. WRIGHT. That is all right.

Mr. YATES (continuing). And I was simply answering it; that is all.

Mr. HILL of Maryland. I thank you very much.

ADDITION TO MR. YATES'S TESTIMONY.

On yesterday Mr. Garrett requested certain information regarding the charter powers of the several companies to guarantee the fertilizer proposal. This suggestion was possibly based on a misapprehension of the proposals.

You will note that in the power proposal of the 15th of January we agreed to organize a corporation with a capital of $10,000,000 to lease the Muscle Shoals power projects. In the proposal of January 24, 1924, the three power companies, together with Messrs. Swann, Bacon & Jones, agreed to organize a corporation with a capital of $5,000,000 to engage in the manufacture of nitrogen and fertilizers. It is then provided in this proposal that the lessee under the proposal of January 15, being the new power company, will guarantee to the United States that the provisions of the fertilizer proposal will be carried out.

The two corporations which will thus be formed will have a combined capital of $15,000,000. They are each, in effect, guarantors of the entire power and fertilizer situation. It is not, therefore, important in this situation just what are the charter powers of the several power companies which have made the proposals, for their obligation is to provide the necessary $15,000,000 of capital and after the leases are made between the Government and the new power company, the various utilities in the Southeast, together with those making the proposal, will make contracts with the new company under which power will be distributed by those companies.

As I have already stated, the power companies making these two proposals guarantee to provide $15,000,000 of capital for the combined fertilizer and power company. This capital is now provided for, subject to the acceptance of the proposals by the Government.

It was indicated by some members of the committee that the lease of the power projects should, in effect, guarantee the performance of the contract to manufacture fertilizer. That requirement is now met by the proposal to have the lessee power company guarantee the performance of the fertilizer contract. No question can possibly arise as to the charter power or right of the two companies which we propose to form, viz, the power company and the fertilizer company, to make these proposed contracts, for in forming the corporations they will be given charter powers to enable them to carry out these obligations to the satisfaction of the attorneys for the Government.

Not only then does the Government have the guaranty of the entire Muscle Shoals power situation, but the $15,000,000 of new capital which the two companies will have; and beyond that will be the power contracts which the new company will make with various other companies in the South for the sale of power to the public in the Southeastern States. As I have stated, there are approximately 250,000 customers now served by these companies; their capital investment amounts to approximately $200,000,000, and the demand for power is constantly increasing, so that there should be no difficulty in the Government's obtaining the rentals for the power situation in accordance with the proposed lease.

If any objection exists to having two corporations make the contracts with the Government for the power and fertilizer situations, then we will be glad to work it out so that one new company can be formed to take over both situations under the terms and conditions outlined in the proposals. In that case the new company will, of course, have $15,000,000 of capital which the two corporations under the present proposals will have.

Prior to 1914 initial funds to develop water-power properties in Alabama were obtained principally from other countries. When the war began in 1914, the securities of the Alabama Power Co. were largely held abroad. Because of

financial conditions in Europe during and following the World War, a great many of these securities were freely offered and have been purchased from time to time by citizens of this country. In addition, the securities of the company have been greatly increased since 1914 to carry on its development program, all of which have been sold to investors in this country. The result is that at this time more than 60 per cent of the outstanding common and preferred stock of the company is now held in the United States, the balance in other countries and about 83 per cent of all the securities of the Alabama Power Co. are held in the United States. A majority of the board of directors has all along been made up of citizens of Alabama, and I may add that the largest single holding of the company's stock is in Alabama in the hands of its officers and directors and employees.

However, in accordance with the request of Mr. Garrett, we give the charter powers of the several power companies on this point, together with the names of their directors and their capital stock and indebtedness as requested by Mr. Wright:

Tennessee Electric Power Co. (as of December 31, 1923).

Outstanding first preferred stock (par)	$11, 900, 500
Outstanding preferred stock (no par), shares	50, 000
Outstanding common stock (no par), shares	156, 000
Authorized preferred (par)	$15, 000, 000
Authorized preferred (no par), shares	100, 000
Authorized common (no par), shares	200, 000
Funded indebtedness	$31, 935, 000

Directors: John W. Barr, jr., H. A. Batchelor, jr., Irving W. Bonbright, G. H. Bourne, James C. Brady, C. M. Clark, E. W. Clark, B. C. Cobb, Paul M. Davis, B. C. Edgar, W. M. Flook, Jo. Conn Guild, George E. Hardy, Charles A. Lyerly, John J. O'Brien, T. R. Preston.

Executive committee: B. C. Cobb, chairman, C. M. Clark, Irving Bonbright, W. M. Flook, J. J. O'Brien.

Officers: C. M. Clark, chairman of the board; W. M. Flook, president; George E. Hardy, vice president; B. C. Edgar, vice president; H. L. Clark, vice president; Jo. Conn Guild, vice president; G. L. Estabrook, secretary and treasurer; W. L. Lamont, assistant secretary and assistant treasurer; C. Wright, assistant secretary and assistant treasurer; G. H. Bourne, assistanr secretary; H. G. Kessler, comptroller.

PROVISIONS OF CHARTER OF TENNESSEE ELECTRIC POWER CO. RELATIVE TO AUTHORITY TO ORGANIZE FERTILIZER AND POWER COMPANIES, IN ADDITION TO OTHER POWERS OF THE COMPANY AUTHORIZING IT TO ENGAGE IN PUBLIC UTILITY AND OTHER BUSINESSES.

"Third. Purposes: The purposes for which the corporation is formed, and the business or objects to be carried on and promoted by it are as follows:

"(*a*) The purchase, acquisition, ownership, holding and enjoyment and sale, pledge, and other disposition of and trading and dealing in shares of the capital stock and bonds, notes, debentures, and other evidences of indebtedness of corporations and corporate securities of every and any kind, including particularly shares of stock bonds, notes, debentures, evidences of indebtedness, and securities of corporations owning and operating or owning or operating power plants, lighting or heating plants, railways and railroads, or any or all thereof, with the power and authority to exercise and enjoy all rights, powers, and privileges of ownership of all shares of stock bonds, notes, debentures, evidences of indebtedness, corporate securities, and choses in action at any time owned, acquired or held. * * *

"In the prosecution of and in connection with the aforesaid general purposes, and as incidental thereto, this corporation proposes to engage in the following: * * *

"6. The issue of bonds, coupon notes, promissory notes, debentures, or other obligations for the purpose of borrowing money, and the mortgaging, pledging or giving or conveying in trust any or all of the corporate property, real, personal, or mixed, and its corporate and other franchises, rights, and privileges to secure the payment thereof. * * *"

Carolina Power & Light Co. (as of December 31, 1922).

[Moody's Analyses of Investment, 1923, p. 978.]

Funded debt	$3, 480, 500
Preferred stock authorized	3, 500, 000
Preferred stock outstanding	2, 436, 200
Common stock authorized	5, 000, 000
Common stock outstanding	4, 487, 500

Directors: P. A. Tillery, R. E. Breed, Charles E. Johnson, C. N. Mason, S. Z. Mitchell, William Darbee, A. W. Burchard, R. H. Smith, C. E. Groesbeck, W. A. Tucker, Philip Stockton.

Officers: Charles E. Johnson, president; P. A. Tillery, vice president and general manager; William Darbee, R. H. Smith, E. W. Hill, vice presidents; E. P. Summerson, secretary; A. C. Ray, treasurer.

Yadkin River Power Co. (as of December 31, 1922, Moody's Analyses of Investments, 1923, p. 980).

Funded debt	$7, 500, 000
Preferred stock authorized	2, 000, 000
Preferred stock outstanding	1, 608, 300
Common stock authorized	4, 000, 000
Common stock outstanding	23, 835, 000

Directors: C. N. Mason, S. Z. Mitchell, Charles E. Johnson, Philip Stockton, R. E. Breed, A. W. Burchard, R. H. Smith, William Darbee, C. E. Groesbeck, P. A. Tillery, W. A. Tucker.

Officers: Charles E. Johnson, president; P. A. Tillery, vice president and general manager; William Darbee, R. H. Smith, E. W. Hill, vice presidents; E. P. Sumerson, secretary; A. C. Ray, treasurer.

Memphis Power & Light Co. (as shown by Moody's Analyses of Investments, 1923, p. 1681).

Funded debt		$9, 331, 000
Authorized preferred stock	shares	75, 000
Outstanding preferred stock	do	10, 000
Common stock authorized	do	400, 000
Outstanding common stock	do	400, 000

Directors: H. C. Abell, chairman; F. N. Fisher, J. R. Flippen, C. J. Haas, R. L. Matthews, J. P. Norfleet, J. P. Ramier, T. H. Tutwiler, Henry Wetter, C. E. Groesbeck, F. B. Odlum.

Officers: T. H. Tutwiler, president; J. P. Ramier, E. W. Hill, L. H. Parkhurst, vice presidents; L. Le May, secretary; J. W. Clapp, treasurer.

PROVISIONS OF CHARTER OF MEMPHIS POWER & LIGHT CO. RELATIVE TO AUTHORITY TO ORGANIZE FERTILIZER AND POWER COMPANIES, IN ADDITION TO OTHER POWERS OF THE COMPANY TO ENGAGE IN PUBLIC UTILITY AND OTHER BUSINESSES.

To acquire by purchase, subscription, or otherwise, and to own, hold for investment, or otherwise, and to use, sell, assign, transfer, mortgage, pledge, exchange, or otherwise dispose of, real and personal property of every sort and description and wheresoever situated, including shares of stock bonds, debentures, notes, scrip, securities, evidences of indebtedness, contracts or obligations of any corporation or corporations, association or associations, domestic or foreign, or any firm or individual of the United States, or any State, Territory, or dependency of the United States or any foreign country, or any municipality or local authority within or without the United States, and also to issue in exchange therefor stocks, bonds, or other securities or evidences of indebtedness of this corporation and while the owner or holder of any such property to receive, collect, and dispose of the interest, dividends, and income on or from such property, and to possess and exercise in respect thereto all of the rights, powers, and privileges of ownership, including all voting powers thereon.

To aid in any manner any corporation or association, domestic or foreign, or any firm or individual, any shares of stock in which, or any bonds, debentures, notes, securities, evidences of indebtedness, contracts or obligations of which are held by or for this corporation or in which or in the welfare of which this corporation shall have any interest, and to do any acts designed to protect, preserve, improve, or enhance the value of any property at any time held or controlled by this corporation, or in which it may be at any time interested; and to organize or promote or facilitate the organization of subsidiary companies.

The North Carolina Electrical Power Co. (as of December 31, 1922, Moody's Analyses of Investments, 1923, p. 1708).

Funded debt	$718, 000
Authorized preferred stock	1, 000, 000
Authorized preferred stock outstanding	52, 000
Authorized common stock	1, 000, 000
Authorized common stock outstanding	425, 000

Directors (as at present): Frank Silliman, jr., F. A. Reid, L. H. Parkhurst, W. E. Reid, L. J. Muir, A. B. McDaniel, J. J. Ginder, S. W. Vincent, Walter Schweikhardt.

Officers: Frank Silliman, jr., president; Frank A. Reid, vice president; E. P. Summerson, secretary; A. C. Ray, treasurer.

Alabama Power Co. (as of November 30, 1923).

Common stock authorized	shares	400, 000
Common stock outstanding	do	187, 510
Preferred authorized	do	100, 000
Preferred par and nonpar, outstanding		$5, 975, 717. 38
Funded debt		$45, 387, 300. 00

Directors: Thomas W. Martin, W. N. Walmsley, E. A. Yates, W. H. Hassinger, F. M. Moody, E. C. Melvin, D. P. Bestor, jr., Gerhard M. Dahl, Lawrence Macfarlane, S. Z. Mitchell, W. H. Weatherly, W. J. Henderson, C. E. Groesbeck, R. A. Mitchell, Richard M. Hobbie.

Officers: Thomas W. Martin, president; R. A. Mitchell, W. N. Walmsley, E. A. Yates, vice presidents; Lamar Aldridge, secretary; Robert M. MacLetchie, treasurer; Stephen A. Dawley, assistant secretary; M. P. Randall, assistant secretary and assistant treasurer.

PROVISIONS OF THE CHARTER OF ALABAMA POWER CO. RELATIVE TO AUTHORITY TO ORGANIZE FERTILIZER AND POWER COMPANIES, IN ADDITION TO OTHER POWERS OF THE COMPANY AUTHORIZING IT TO ENGAGE IN PUBLIC UTILITY AND OTHER BUSINESSES.

(d) To acquire, hold, operate, occupy, use, equip, improve, alter, repair, finance, reorganize, to merge or consolidate into or with any other corporation or corporations which are authorized to merge or consolidate; to own, buy, sell, lease or otherwise control, operate, or dispose of concessions and franchises of water power, steam power, water supply, gas, street railway, interurban or other electric railways, traction, lighting, and electric and other public-utility properties of the same or similar nature;

(e) To acquire by purchase, subscription or otherwise, and to hold, sell, assign, transfer, mortgage, pledge, or otherwise dispose of bonds, stock, and other securities or evidence of indebtedness created by any corporation or corporations of this or any other State, Territory, or county, and while owner thereof to exercise all the rights, powers, and privileges of ownership, including the right to vote thereon; and to aid in any manner any corporation whose stock, bonds, or other obligations are held or in any manner guaranteed by the company, and to guarantee the value of and payment of, or do any other acts or things for the preservation, protection, improvement, or enhancement of the value of any such stock, bonds, or other securities, or to do any acts or things designed for any such purpose.

Southern Power Co. (as of December 31, 1922, Moody's Analyses of Investments, 1923, page 1739).

Funded debt	$7,000,000
Preferred stock authorized	10,000,000
Preferred stock outstanding	6,000,000
Common stock authorized	5,000,000
Common stock outstanding	4,800,000

Directors: J. B. Duke, B. N. Duke, W. Gill Wylie, R. H. Wylie, W. C. Parker, W. R. Perkins, W. S. Lee, C. I. Burkholder, E. C. Marshall.

Officers: J. B. Duke, president; B. N. Duke, W. Gill Wylie, W. S. Lee, vice presidents; W. C. Parker, secretary; A. B. Duke, treasurer; E. C. Marshall, assistant secretary; W. H. Martin, jr., assistant treasurer; C. I. Burkholder, general manager.

Central Georgia Power Co. (as of December 31, 1922, Moody's Analyses of Investments, 1923, page 448).

Funded debt	$2,680,000
Common stock authorized	4,000,000
Common stock outstanding	3,751,300

Directors: L. A. Magraw, N. M. Block, C. B. Lewis, L. G. Smith, J. N. Neel, W. H. Felton, M. F. Hatcher, L. S. Dure.

Officers: W. H. Felton, president; L. S. Dure, vice president; R. Frank Jones, secretary; L. A. Magraw, treasurer; W. E. Houser, auditor; W. P. Fisher, assistant secretary and treasurer.

Asheville Power & Light Co. (as of December 31, 1922, Moody's Analyses of Investments, 1923, page 979).

Funded indebtedness	$1,220,000
Authorized preferred stock	1,000,000
Preferred outstanding	539,700
Authorized common stock	1,000,000
Outstanding common stock	1,000,000

Directors: Charles E. Johnson, H. W. Plummer, C. N. Mason, C. E. Groesbeck, S. Z. Mitchell, William Darbee, R. H. Smith, W. A. Tucker, Philip Stockton, A. W. Burchard, R. E. Breed.

Officers: Charles E. Johnson, president; H. W. Plummer, E. W. Hill, William Darbee, R. H. Smith, vice presidents; E. P. Summerson, secretary; A. C. Ray, treasurer.

Georgia Railway & Power Co. (as of December 31, 1922, Moody's Analyses of Investments, 1923, p. 450).

Funded debt	$40,471,000
Preferred stock authorized	12,500,000
Preferred stock outstanding	12,500,000
Common stock authorized	15,000,000
Common stock outstanding	15,000,000

Directors: C. G. Adsit, P. S. Arkwright, H. M. Atkinson, G. W. Brine, T. K. Glenn, Frank Hawkins, R. F. Maddon, John E. Murphy, F. J. Paxton, J. J. Spalding, M. R. Wilkinson, Randal Morgan, Lewis Lillie, C. E. Smith, E. G. Stevenson.

Officers: H. M. Atkinson, chairman of the board; P. S. Arkwright, president; G. W. Brine, W. H. Taylor, vice presidents; F. L. Butler, vice president and operating manager; C. G. Adsit, vice president and executive engineer; W. H. Wright, secretary; W. I. S. Mitchell, jr., treasurer; F. A. Brine, auditor.

Columbus Electric & Power Co. (as of December 31, 1922, Moody's Analyses of Investments, 1923, p. 161).

Funded debt	$4, 125, 000
Preferred stock authorized	3, 428, 700
Preferred stock outstanding	3, 428, 700
Common stock authorized	1, 500, 000
Common stock outstanding	1, 500, 000

Directors: George J. Baldwin, Frank B. Beemis, Henry G. Bradlee, William C. Bradley, Frank U. Garrard, Frederick B. Gordon, Levi H. Greenwood, John F. Flournoy, G. Gundy Jordan, Russell Robb, Edwin S. Webster.

Officers: G. Gundy Jordan, chairman; Henry G. Bradlee, president; Harry H. Hunt, Charles F. W. Wetterer, R. M. Harding, Norman W. Munford, vice presidents; William T. Crawford, secretary; Henry B. Sawyer, treasurer; R. M. Harding, manager.

I wish, in addition, to point out that by bringing the Muscle Shoals power situation into the superpower system of the Southeast, the result, in effect, will be the pooling of the costs of power throughout the entire Southeast so that the cheap power thus made available at Muscle Shoals will benefit the consumers over a wide area. This should not be overlooked, because as I stated before, the effect of bringing in the Muscle Shoals power will set back for some years at least the time when the water powers of the South are all exhausted, making necessary for larger amounts of coal to be used to supply power.

It has been suggested that the Government might operate the Muscle Shoals power plants and sell the power. This would make it impossible to operate the plant to its full capacity. It must be remembered that the weakness of the power possibilities at Muscle Shoals is the wide variation in the flow of the river, which at its minimum will produce less than 100,000 horsepower, with a maximum possible use if supplemented from other sources of 600,000 horsepower. The power transmission lines in the Southeastern States are interconnected in a superpower system and this permits the interchange of power from one company to another; so that in times of low water in the Tennessee River, the necessity for power can be supplied from other sources in the Southeastern States, and when the river flow permits the Muscle Shoals plants to generate their full capacity, the power will flow from Muscle Shoals to where needed. With the view of supplementing these so-called "run of river" power plants, the power companies have constructed several reservoirs and are planning to construct others in Alabama, Tennessee, and Georgia, and when completed will be the most feasible plan for conserving to the greatest extent this large amount of secondary power at Muscle Shoals. The proximity of some of these storage plants to Muscle Shoals will admit of instant use of the stored waters when and as required to maintain a constant output of energy from the combined systems uninfluenced by other situations. The private companies will in due course have a much larger investment in these storage plants than the Government will have in the entire Muscle Shoals power projects. In other words, the maximum output of power at Muscle Shoals operated in conjunction with these storage plants of the utility companies in other rivers will be double that of Muscle Shoals if operated independently.

The Muscle Shoals plant, if operated as a part of the superpower system of the Southeast, will at times be used to carry peak loads and at other times when the river is low, to carry base loads; and the value of the project can never be realized either to the Government or others, unless operated in this manner in conjunction with the various storage and other plants of the South to permit this operating situation to take advantage of diversity of stream flow in various watersheds and various conditions to which I have referred.

The Government engineers in 1921 came to the same conclusion in a report from which I quote:

"144. The best economy and reliability can not be secured by any one development, whether it is hydro power by flow of stream or by storage or steam power, but will be obtained by a suitable combination of these different sources and by the interconnection of the systems supplied by them. Muscle Shoals has been selected by the Government as a favorable location for the production of cheap power. The proposed design will furnish 100,000 kilowatts of prime power and 200,000 kilowatts of second-class power in an average year. The steam plant of 60,000 kilowatts which the Government has installed at Muscle Shoals is capable

of converting a portion of the second-class power into prime power. But this combination with a steam plant at Muscle Shoals, regardless of whatever economy may result, can not be, broadly speaking, as favorable for all interests, either the Government interests or private interests, as a combination of the Muscle Shoals steam and hydro powers with an interconnected group of public utility systems as described in this report. To segregate the Muscle Shoals power facilities from the other systems of the country is contrary to the policy recommended and strongly advocated; that is, of interconnecting all of the efficient going power systems and jointly operating them for maximum economy. The same principle which works for increased economy by interconnecting the public utility power systems of the Southern States applies to a further interconnection including the Muscle Shoals plants, and in the interest of cheap and reliable power the law should be changed and the interconnection and joint operation of all of the developed powers should be provided for."—The Power Situation During the War, pp. 264–265.

It might be still better explained in the following language of Secretary Hoover, who recently discussed the same principles as applied to power developments in the Northeastern States.

"We can secure great economies in distribution through the interconnection of load between systems and thus secure a reduction in the amount of reserve equipment, a better average load factor through pooling the effect of day and seasonal variations, together with wider diversification to use by increased industrial consumption. We can assure more security in the power supply from the effect of coal strikes and from transportation interruption."

The CHAIRMAN. Now, is there any other witness here this morning?

Mr. MARTIN. There is a gentlemen here, Mr. Tillery, who wants to make a statement.

The CHAIRMAN. Mr. Tillery, will you kindly give your full name to the stenographer and any other information that will be useful to the committee?

STATEMENT OF MR. P. A. TILLERY, VICE PRESIDENT AND GENERAL MANAGER OF THE CAROLINA POWER & LIGHT CO. AND THE YADKIN RIVER POWER CO.

Mr. TILLERY. My name is P. A. Tillery, vice president and general manager of the Carolina Power & Light Co. and the Yadkin River Power Co., both with headquarters in Raleigh, N. C.

The CHAIRMAN. Your companies have not signed this agreement?

Mr. TILLERY. No, sir; they did not, but did sign the letter to Mr. Merrill of January 8, 1924.

The CHAIRMAN. This proposal to the Government?

Mr. TILLERY. No, sir.

The CHAIRMAN. Now, proceed with your statement.

Mr. TILLERY. Our interest in this matter arises from the fact, in part, that when the Sheffield steam plant was leased from the Government by certain southeastern power companies, our company joined in underwriting that lease. During the past three years we have, from time to time, procured power from the Alabama Power Co., from the Sheffield plant, through the Alabama Power Co., and through the transmission systems of the Georgia Railway & Power Co., and the Southern Power Co. We have not joined in signing the proposal of the power companies, not because we are not interested in the matter, but because there are two intervening transmission systems between our transmission lines and the lines of the Alabama company, these systems being the systems of the Georgia company and the Southern company.

Having already been a user of power from the Sheffield steam plant at Muscle Shoals and knowing the practicability of that power being transmitted and used in North Carolina and believing that if the Muscle Shoals property were leased to power companies that this power would be available for use in our State and for the development of our State, we felt interested from that point of view. I believe that if the Muscle Shoals property were leased to the power companies that arrangements would be made, as they have been made in the past, for the power to be transmitted into North Carolina, and that it would be of considerable benefit to our State in building up its industries.

Quite naturally, it is a matter in which we feel interested for other reasons. In the first place, we are keenly interested in the development of our State. We have been serving the State since 1908 with hydroelectric power. Our business has grown quite rapidly; our lines extend from the Virginia line, prac-

tically from the Virginia line, through the State into South Carolina, covering a territory, quite a large territory, and the transmission lines themselves aggregating about 800 miles in length, and at the present time our peak load amounts to about 50,000 kilowatts, and we are now building additional plants which aggregate from 20,000 to 40,000 horsepower.

We believe that if the Muscle Shoals development were made and operated on a basis that would correspond to subsidizing some individual in the ownership of those properties, or in the lease of those properties, it would necessarily affect our own development. In other words, if power is sold more cheaply in Alabama than it is sold in North Carolina, it will necessarily affect us, because that is our State, because the cotton mills instead of locating in North Carolina will naturally go where the source of power is cheapest.

Mr. SHERWOOD. I have been curious to know how many of those cotton mills there are in North Carolina.

Mr. TILLERY. We are serving at present about 70 mills.

Mr. SHERWOOD. And you say it is about 800 miles from Raleigh, too——

Mr. TILLERY. Our transmission lines spread out in all directions.

Mr. SHERWOOD. I marched over that country in 1864 and I thought it was farther than that. [Laughter.]

Mr. TILLERY. The total length of the lines we have is about 800 miles. You mean how many cotton mills they have in the State?

Mr. SHERWOOD. Yes.

Mr. TILLERY. I would say that we have at least 500 or 600 mills in the State of North Carolina. These southern power companies serve a greater portion of these mills.

Mr. SHERWOOD. Are they located largely on the coast?

Mr. TILLERY. No; they are located in the Piedmont section.

Mr. MCSWAIN. You must come down there again, General, and see the changes we have made. [Laughter.]

Mr. TILLERY. As I stated before, we feel interested in the matter because we would like, in our State, to have the benefit of Muscle Shoals along with the other Southeastern States, and it is a natural resource, and we believe it will be of most benefit to all of the people in the Southeast for it to be used for the service of all of the people in the Southeast.

Mr. MCKENZIE. You are viewing this matter from the standpoint of a citizen of the State of North Carolina?

Mr. TILLERY. Yes, sir.

Mr. MCKENZIE. And as a business man interested in the development and extension of the corporation with which you are connected?

Mr. TILLERY. Yes, sir.

Mr. MCKENZIE. And to that extent you take what might be termed a provincial view of the whole situation rather than a national view?

Mr. TILLERY. Yes; I would say so.

Mr. MCKENZIE. I am not criticizing you for that at all, but I just simply want to be sure I understand your position.

Mr. TILLERY. I would like to say this, however, if I may express an opinion, that viewed from the standpoint of the Southeast, it is my opinion it would be to the best interests of the Southeast for this power to be distributed in the development of the entire Southeast rather than in the development of any one large enterprise. Further, that if developed as one large enterprise in the manufacture of fertilizer, that the benefit will necessarily be confined to a small territory, so far as the fertilizer goes, on account of the high freight rates; that is, the limitation of the shipment of fertilizer by the freight rates.

Mr. WURZBACH. What are the other sources of power of your company—hydroelectric power?

Mr. TILLERY. Of the total amount of power that we distribute there is about, I would say, three-fourths water and one-fourth steam.

Mr. WURZBACH. Where do you get your three-fourths water power?

Mr. TILLERY. Principally from the Yadkin River, and the Wateree—the Wateree River in South Carolina and the Yadkin River in North Carolina.

Mr. WURZBACH. Has that power been developed to its full extent?

Mr. TILLERY. No; there are other sites on the Yadkin River that are susceptible of development?

Mr. WURZBACH. Would that development probably take care of the cotton mills and industrial enterprises in your State for some time?

Mr. TILLERY. Yes; it would take care of our territory—certainly its needs in the immediate future.

Mr. GARRETT. I understood you to say, Mr. Tillery, that you were in no way connected with the other power companies?

Mr. TILLERY. No, sir; I am not.

Mr. GARRETT. With the other power companies who signed the contract?

Mr. TILLERY. No, sir; I am not.

Mr. GARRETT. But you are interested in that you would prefer to see them get the contract for this power, rather than Mr. Ford?

Mr. TILLERY. Yes, sir.

Mr. GARRETT. If Mr. Ford should generate power, more than he needs for his industry, at that place, at Muscle Shoals, and could sell it to your company and distribute it to North Carolina cheaper than the other companies could sell it, according to the testimony given before the committee this morning and yesterday, would you then say it would be to the interests of your people in developing the interests of North Carolina for Mr. Ford to have the Muscle Shoals proposition or for the allied power companies to have it, who must sell at a higher rate, according to the testimony?

Mr. TILLERY. Well, if he could sell it cheaper it would be to our advantage, and the advantage of our State. But, as the matter stands, that is impossible. The power that is generated at Muscle Shoals would have to be transmitted at a distance in order to get it to us, over transmission lines, possibly six or seven or eight hundred miles. Now, as a matter of fact, the power generated at Muscle Shoals would not reach North Carolina; it is a matter of relaying through which we get it. In other words, the Alabama company picks up the southern load of the Georgia company; the Georgia company picks up the southern load of the Southern Power Co.; the Southern Power Co. picks up the southern load on our system. So that the power itself is not transmitted; but we say it is relayed.

Mr. GARRETT. Well, if Mr. Ford was selling power to the public, he would be under the same rules and regulations, I take it, as the other power companies, and would there be any trouble in the way of relaying the power over these various lines to your State from Muscle Shoals, just the same as these various companies could do it?

Mr. TILLERY. I presume if the agreements were made with the intervening power companies, that would possibly be true.

Mr. GARRETT. In the absence of any agreement, do you not think that would call for some Government regulations and require, in the interest of the public, the transmission of power, just like they now require the transmission of oil through the various pipe lines of the country?

Mr. TILLERY. It might be in the future the Interstate Commerce Commission, which has never taken jurisdiction of those matters so far, might regulate it as interstate commerce. I might make this remark, if I may, that in the final analysis, the cost of power at Muscle Shoals is going to be a certain thing and while Mr. Ford might, under his plan and the plan of his lease, be able to manufacture the power there very cheaply, because of the cheap rental of the plant, somebody has got to pay the bill. The cost of the power is going to be there; the cost will be as great probably—that is, the actual cost will be as great probably—as the cost of the power developed by the Alabama company or the Georgia company or by ourselves. It is just a question of who is going to foot the bill.

Mr. GARRETT. You are viewing the whole question purely from the power standpoint?

Mr. TILLERY. I am viewing this whole thing purely from the power standpoint and the standpoint of my State.

Mr. GARRETT. Aside from your State, you are simply viewing it from the power standpoint; you do not take into consideration the maintenance of the nitrate plants for the use of the Government, to be kept in a stand-by condition during the term of the lease, nor do you take into consideration what benefit might flow to your State by virtue of the fact Mr. Ford, during the period of his lease, will be compelled to furnish the farmers of North Carolina fertilizer, and the public waterways feature of it also?

Mr. TILLERY. I would say that no matter by whom developed, the waterways feature would certainly be preserved. Secondly, I do think that whoever leases that plant should be under the obligation to turn it over to the Government in case of war, and that it should be held there by the Government for the manufacture of nitrates in case of war. I do not think there is any question about that. But I am firm in my belief, so far as our State is concerned, we will get more benefit in the development of all of our industries and Alabama will get more benefit in the development of all of her industries, in the distribution of this power in this form, than it would get through the development of one industry in our State, with one very large hydroelectric plant, the output of which is dis-

tributed almost exclusively to the manufacturer of one product. There is at least 100,000 horsepower, as a minimum, generated in one plant. All of the power is used in one place. That development has contributed greatly to the development of one small community. The same amount of power distributed throughout the State, for industries here, there, and yonder, would multiply ten times; there would be ten times as many people, maybe twenty-five times as many, and it would develop every community in the State, would tend to develop every community served. That is my conviction in the matter, gentlemen.

Mr. McSwain. You speak of the Whitney place?

Mr. Tillery. The Aluminum Co.

Mr. McSwain. Yes; that is the Whitney.

Mr. Wainwright. A great deal is made of this question of these plants being required to be turned over to the Government. Is there any question in your mind that any plant of this kind would be turned over to the Government, anyway and the Government would take it, notwithstanding whether there was or was not a provision in the agreement?

Mr. Tillery. I do not think it would make any difference whether there was a provision in the contract of that kind or not; the Government would surely have the right to take it.

Mr. Quin. According to your view of it, then, these people of Alabama and North Carolina who are rearing on their hind legs to their Congressmen to turn this over to Mr. Ford do not know what they are doing? You said it would be not to the best intersets of the State to do that?

Mr. Tillery. I have not seen any evidence of that in my State. I do not know as to Alabama.

Mr. Quin. But I know. Ever since I have been here your Congressmen have been among the most active ones in the South. Have they been misleading the people of North Carolina?

Mr. Tillery. I should think not.

Mr. Quin. Well, then, do you want to withdraw that part of your statement? And these Alabama gentlemen have been persistent, but you say the people of North Carolina and Alabama, the two States you speak for, would get more benefit out of this power-distribution scheme than the other?

Mr. Tillery. I say that is my opinion.

Mr. Quin. Oh well, I am glad you restrict it to your opinion. My people came from North Carolina and I am a little interested in your State—my grandmother did. It is a great State. Do you not think, from your viewpoint—you say there are 600 to 700 cotton mills in the State?

Mr. Tillery. At least that many, I would say.

Mr. Quin. And the State of North Carolina has more varied interests, more farm products, more manufacturing interests, that is, of different types, than any other State in the Union, according to the Government statistics.

Mr. Tillery. I think that is very probably true, sir.

Mr. Quin. You have a world of good land and a world of poor farm land in that State, have you not?

Mr. Tillery. Yes, sir.

Mr. Quin. The people buy a world of fertilizer. You speak now of freight rates being 'way up; have you read the hearing and do you understand the method under which this fertilizer is going to be produced?

Mr. Tillery. No, sir; I am quite unfamiliar with that.

Mr. Quin. I thought you were. They are going to have this fertilizer in concentrated form and send it out by parcel post, if necessary. [Laughter.] They are going to send it out by parcel post, if necessary, and stop all this freight rate robbery. The farmers of every State are vitally interested in getting fertilizer, are they not?

Mr. Tillery. Yes, sir.

Mr. Quin. The fact is, you have a great big concern down there now, the Virginia-Carolina Chemical Co., which operates pretty generally through North Carolina, does it not?

Mr. Tillery. Yes, sir.

Mr. Quin. They do not want to see Mr. Ford get hold of that place down there, where he can make fertilizer out of the mere waste products, do they?

Mr. Tillery. I do not know, sir.

Mr. Quin. Do you not know they came in here and had some sort of a bill put on file? I do not know the name of the gentleman who put the bill in, but I think General Butler came over here and argued the matter before the committee. They wanted to get hold of this plant. Now, you do not want the

fertilizer fellows to get it; you want it to go to the parties distributing this current to put lights in the cities and put the wheels of industry to turning; that is your idea about it?

Mr. TILLERY. Yes, sir.

Mr. QUIN. Of course that is good and laudable, but we think the other ought to go along with it and is the vital part of it.

Mr. TILLERY. This wonderful industrial development you are talking about in North Carolina is a thing in which we take great pride.

Mr. QUIN. The Lord did it by putting the water there for you over the falls, didn't he?

Mr. TILLERY. Yes, sir; and our company is what has brought about the distribution of the power throughout the State.

Mr. QUIN. You have a splendid water power in North Carolina on the Little Elkin and Yadkin, and you have cotton mills scattered all through the State.

Mr. TILLERY. Yes; but it is a source of water power that will be exhausted; I would say the next five or ten years would exhaust the undeveloped water power in the State.

Mr. QUIN. You would not want to hog it all. My State has not any water power now to run the cotton mills and other industries, and you would not want the State of North Carolina to hog it all, all of the power that comes down from Muscle Shoals?

Mr. TILLERY. We would like to send some over to Mississippi.

Mr. QUIN. Yes; but you are a little bit far away, according to your relaying talk here. [Laughter.] I feel my people want the fertilizer, that is what they need, to make cotton for you fellows to spin. [Laughter.]

The CHAIRMAN. Mr. Hull, before he left, handed the chairman a letter which he desired me to put in the record. I will ask the clerk to read it.

Mr. QUIN. What is that letter about, Mr. Chairman?

The CHAIRMAN. About this matter; he was writing to the Georgia Railway & Power Co.

Mr. HILL of Maryland. Is the letter he wrote attached with it, or just the reply?

The CHAIRMAN. Just the reply.

Mr. HILL of Maryland. It seems to me we ought to have the letter he wrote to the Georgia Railway with it.

The CHAIRMAN. That was put into the record yesterday.

The CLERK (reading):

FEDERAL POWER COMMISSION,
Washington, January 22, 1924.

Hon. HARRY E. HULL,
House of Representatives.

MY DEAR MR. HULL: I received yesterday a letter dated January 11, from Mr. H. M. Atkinson of the Georgia Railway & Power Co., with respect to the joint letter signed by a group of southern power companies, offering to lease the power properties of the United States at Muscle Shoals. This letter will no doubt be of interest to you in connection with the previous letter, and I am accordingly transmitting it to you.

Very truly yours,

O. C. MERRILL, *Executive Secretary.*

GEORGIA RAILWAY & POWER CO.,
OFFICE OF THE CHAIRMAN, ATLANTA,
New York, N. Y., January 11, 1924.

FEDERAL POWER COMMISSION, *Washington, D. C.*

GENTLEMEN: Referring to the joint letter signed by a group of southeastern power companies, offering to prepare a definite proposal to lease or purchase the Government dam and hydroelectric development at Muscle Shoals, Ala., together with the Government steam plant at Sheffield, Ala., we wish to advise you that while this company has decided not to join in the joint letter to the Federal Power Commission, or the definite proposal to lease the Government plants at Muscle Shoals and Sheffield, Ala., this company wishes and intends to cooperate in carrying out the proposal to lease or purchase said plants. Owing to certain local conditions inherent to the territory in Georgia served by this company, and also to a fixed policy, this company can not consistently sign the joint letter of the Southeastern Power Companies to the Federal Power Commission, nor

can it for the same reason become a party in the first instance to the definite proposal to lease or purchase the Government plants at Muscle Shoals, Ala.

The power transmission lines of this company are interconnected with the lines of the Alabama Power Co. and Tennessee Electric Power Co. on the west, with the lines of the Columbus Power Co. and Central Georgia Power Co. on the south, and also with the lines of the Southern Power Co. on the east. This company hopes and believes that it will be possible to indirectly join with and support the other southeastern power companies in carrying out the proposal which they intend to make to the Government by purchasing a fixed amount of the power output of the Government plants at Muscle Shoals (in the event they are leased to the southeastern power companies) for distribution to the public throughout the territory which it serves in Georgia. This company will also support the effectual carrying out of the plan proposed by cooperating with the other southeastern power companies with all of whom it has connections, so that the Muscle Shoals power output may be distributed over the transmission lines of this company to the public throughout the widest possible territory.

The proposal of the southeastern power companies to lease or purchase the Government plants at Muscle Shoals, Ala., is designed to and will serve the widest possible interest. If accepted by the Government it will undoubtedly secure the Government the greatest return obtainable on the investment of public moneys in the Government plants at Muscle Shoals, Ala., will result in the development of the greatest possible useable power output from those plants, and will transmit, distribute, and make available the power output throughout the entire southeastern territory for general use by the public; all of which means that the total investment will be devoted in the most practical manner to the widest use and benefit of the general public throughout a large area of the country which, of course, is the most desirable result which could be obtained by the investment of public funds.

In conclusion, we heartily indorse the proposal of the southeastern power companies to lease or purchase the Government plants named, and wish to add our testimony in the strongest manner possible to the effect that the proposal of those companies is by far the most desirable from the standpoint of public interest that has been or can be made.

Yours very truly,

GEORGIA RAILWAY & POWER CO.,
By H. M. ATKINSON, *Chairman.*

(Thereupon, at 12 o'clock noon, the committee adjourned until Friday, January 25, 1924, at 10 o'clock a. m.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
January 25, 1924.

The committee met at 10 o'clock a. m., Hon. John C. McKenzie presiding.

Mr. MCKENZIE. At the request of the chairman, I am calling this meeting to order so that we may proceed. He will be here in a very short time, but he said he did not want to delay the matter and requested me to call the meeting to order.

Is there any one here representing the Union Carbide Co.?

Mr. MORRISON. Yes, sir.

Mr. MCKENZIE. We will be glad to hear from you.

STATEMENT OF MR. A. CRESSY MORRISON, REPRESENTING THE UNION CARBIDE CO.

Mr. MORRISON. My name is A. Cressy Morrison. I am a direct representative of the Union Carbide Co. and I have been employed by them for the past 16 years. Accompanying me, and also representing the Union Carbide Co. in technical matters, is Mr. L. H. Davis, hydroelectric engineer, well known throughout the country, a man who has done work for the Government and who will give accurate information regarding hydroelectric questions. Also accompanying me is Mr. F. M. Becket. Mr. Becket is an electric furnace expert of unusual, I might say unparalleled, experience. Both of these gentlemen have, for many years, been connected with the Union Carbide Co. directly.

The Union Carbide Co. has had, perhaps, as much, and I think it is safe to say, more experience than any other company, certainly in this country, in the

production of products which are allied to or approximate the solution of the fertilizer problem which is before you gentlemen this morning. I know that the committee will not regard it as a digression if I state some of the fundamental things that underly the problem as you, as we, as business men must consider it. We recognize that you have before you for solution a very intricate and complicated governmental and business relation and we know that you are studiously endeavoring to get at the facts. It may have caused some surprise to those who have considered the matter that there is not already a large nitrate industry in this great country of ours. Nitrate is one of the foundations of agriculture and a beneficent Providence has given to every country an accumulation of nitrates in the soil. Our own country, especially the rich prairie lands, has been more than blessed in this respect. But as agriculture produces edible crops, the nitrogen of the soil becomes depleted and exhausted, and that accounts for the necessity, as old as the Egyptians, of rotating crops. Certain crops like beans, peas, and clovers and other members of that family have the peculiar ability of accumulating nitrogen through bacteria and restoring the fertility of the soil, so far as nitrates are concerned. Because of this farmers through historic times have relied upon this rotation of crops, not always knowing the reason.

But rotation of crops is not sufficient to fully restore the soil and give to humanity the vast crops needed and that vital part of edible food—nitrogen. As the soil of any country becomes more exhausted, the necessity for artificial fertilizer grows, and this necessity has been met first by manure, by rotation, as I have stated, and ultimately by the actual restoration to the soil of nitrogen in some form, as soluble nitrogen, so that the plant could grow fully and produce as it should.

Some years ago a great scientist made the prediction that humanity would starve because of the ultimate exhaustion of nitrogen from the soil. The existing supplies of natural nitrogen in soluble form being limited to very narrow sources and the growing necessity being multiplied in a very direct ratio, he said that 25 or 50 years would bring the world to the point where starvation would confront it.

The Guano Islands off the coast of Chile helped the world in special crops for a long period, but that source of supply for fertilizer was but the accumulations of the droppings of birds through the ages, and that supply was soon exhausted. Then it was discovered in Chile that there was a strip of country that had once been at the bottom of a shallow sea and which had been raised up, and as that part of the country was without rain, the soluble nitrogen of the sea plants was left there. Then Chile became a monopolist. At one time it was believed there was 25 years' supply. Now, in spite of the war, which drew enormous quantities from Chile, it is estimated, because of the improved processes, that there may be 30 or 40 years' supply.

The Chilean Government, finding that it had a monopoly, added an export tax to the price, and to-day this stands at about $10 per ton. This tax the world pays, and this tax goes far to support the Government of Chile. We pay it; the world pays it. The source of supply is more or less controlled by syndicates, and the world has to pay the price which the syndicates ask.

The problem of manufacturing artificial fertilizer has been attacked by the scientists for many, many years, but it is only within the last 15 or 20 that any solution of that problem has been reached. In the meantime, a new source of supply has developed in the sulphate of ammonia by the by-products of coke ovens. Instead of wastefully allowing the smoke or gases from the coke ovens to go up in the air and be lost forever, especially in those countries like Germany which needed nitrogen most, the by-products of these ovens were developed and gave a supply of this as a by-product in the manufacture of coke. It was another source of nitrogen, and being a by-product was highly competitive.

It was then discovered that nitrogen might be made by the use of hydroelectric power and several processes developed. There has been the keenest inventive rivalry in the production of this nitrogen. Each process has advanced with varying success and has been superseded by another, and then the first process would be improved and the second process would take the second place. It has been like a race, that has been run in the most exciting manner and that is not finished. I think it is not safe to say what the real source of nitrogenous fertilizer will be 10 years from now or surely 20 years from now.

The United States has a high standard of living. Its water powers have low heads, except that magnificent asset which we possess at Niagara Falls. These powers are located at long distances from the coasts. We have high labor costs. Over in Norway, in Sweden, and now in Germany, in Czechoslovakia, in Dalmatia,

and in many of the European countries, there are peculiar conditions, geographical and geological, which make for cheap water power, and in Norway, for instance, water power is now obtainable, in vast quantities, as low as $3 per horsepower year, and running up to $8 per horsepower year, and these are located on the deep sea where sources of supply of raw materials are readily available. In Norway, Sweden, and in Germany the production of artificial fertilizer has advanced to a very marked degree. In the United States water power necessarily costs more, because of the broad dams that are necessary to make hydroelectric power available and, as I stated before, our water powers are not upon the sea; so that Norway, with the cheap freight rate, can invade the United States of America with cheap fertilizer at any time, and Chile can reduce its price and make for anyone who made the vast investment necessary to manufacture nitrogenous fertilizer in this country a dangerous risk and little prospect of profit at any time.

I think it is the view of the committee, and certainly the Union Carbide Co. concurs in that view, that every effort, however, should be made to establish the industry in the United States in spite of foreign syndicates and potential competition. It was with that idea in view that we are here to-day in an endeavor to aid on a businesslike basis in the solution of your problems.

Private enterprises are necessarily loath, as I have indicated, to invest large sums of money in processes which are for the moment, perhaps, more or less experimental, and which, in 50 years, are certainly experimental, especially when the large sources of nitrogen from the by-products of coke ovens of our own country can and will produce nitrogen at such low prices that an industrial enterprise based on hydroelectric power, such as is proposed at Muscle Shoals, may at any moment be put out of business or may become obsolete by the discovery of a new and better process.

The CHAIRMAN. Well, that may be true of anything—new discovery may put any old thing out of business.

Mr. MORRISON. I agree with you, Mr. Chairman; there is no question about that. But there are natural resources and economic conditions and a complete absence of prospective profits in this particular industry which, up to the present time, have prevented the establishment of a nitrogenous fertilizer industry in this country.

Mr. MCKENZIE. May I ask a question, if it will not disturb the gentleman, right here, so that you can discuss it as you go on? Of course, you have intimated to the committee it is absolutely necessary to have nitrogen?

Mr. MORRISON. Yes, sir.

Mr. MCKENZIE. There is no promise that without it in the future we can get along. As to the method of obtaining nitrogen, that is something that will be evolved as the years go by, and there may be different sorts of methods. Now, we understand in this committee that the nitrate is a very necessary thing to have; we understand that Mr. Ford in his proposal proposes to manufacture 40,000 tons of nitrogen annually. It does not say anything about whether he makes any money out of it, or whether he loses any money. Now, the question this committee is particularly interested in is whether or not your company or any other company has a proposal that will not only carry with it the assurance that we will get the 40,000 tons of fixed nitrogen annually, but we will get it at a more advantageous figure than that under the Ford offer.

I hope you will bring that out in your statement.

Mr. MORRISON. That question is involved by our proposal and when I come to that feature I will be glad to make a more definite explanation. We have stated and the world admits the necessity.

The Union Carbide Co. thinks it has a solution of that necessity that business men can approach understandingly and with safety, and we are going to bring that forward. Hydroelectric power has definite value and the Union Carbide Co. in making its proposition proposes to undertake the manufacture of fertilizer by the best known practical processes and to produce the best fertilizer for the farmer, in the condition in which he can best use it, at Muscle Shaols, at 5 per cent, with a limit of $2 per ton profit. There is no profit in that to the Union Carbide Co.

Broadly, this company asks the privilege to buying 50,000 horsepower at Muscle Shoals at a reasonable price. In consideration of the privilege of buying it and utilizing a plant which it will rent at a fair rental, it will absolutely undertake this manufacture; and if any better method is found it will follow the Government in suggestion as to new methods along a similar line in the vicinity. If manufacture by a better process is discovered this company will permit the

cancellation of the contract for power used for the production of fertilizer and release the Government on request.

But now, to get down to the meat of the matter of the proposal before the committee, I will just make this general statement regarding it.

First, the Union Carbide Co. is not connected with nor interested in any of the proposals which have or may be made outside of itself.

Second, the Union Carbide Co. would, however, be very glad to cooperate with any of the proponents and carry out its proposal in connection with any of the others, or in connection with the United States.

In advancing this proposal, the Union Carbide Co. thinks that the merits of the proposal itself is sufficient to give it due weight in your consideration and has no desire to press the committee or to persuade the committee to adopt its proposal or any part of it, but merely to put forward what appears to be a business-like solution of your problem and to make it our problem. In other words, to take the grief of the manufacture of fertilizer without real profit and earn the privilege of buying power at fair rates on which we can make a profit in our own enterprises.

The Union Carbide Co. makes a variety of products and has others in contemplation. No one of its products would justify the Union Carbide Co. in locating a plant at Muscle Shoals and utilizing 50,000 horsepower. The cheapness of water power depends not only upon the hydroelectric cost at the plant, but also upon the freight rates out of the plant and the facilities with which raw materials may be brought in, so that a plant located in the western mountains, while desirable and cheap, would be of no value so far as the Union Carbide Co. is concerned, because they could not assemble the raw materials, and the high freight rates back would render the water power useless. But at Muscel Shoals, with the products we now have, with the raw materials somewhere in the vicinity and with the new products we hope to make, we can use 50,000 horsepower, and we would be very glad to purchase that horsepower. For the use of 50,000 primary horsepower we would pay $15 per horsepower year, or $750,000 per annum. If the 50,000 horsepower for making fertilizer is added, we will take it and pay $750,000 additional, making a total of $1,500,000 per year for less than one-half of the total power from Dam No. 2 at Muscle Shoals.

Of course, it is not all primary power and there will be a sliding scale, but there is about 200,000 eight-months horsepower on the average at Muscle Shoals. We suggest that we will take a total of about half of this class of power and, with 25 per cent of the total of this class of power, we will make 100,000 tons of 20 per cent fertilizer. With the other 25 per cent we will make our own products. This leaves about 100,000 eight-months horsepower for the Government to dispose of plus all the power of less than eight months duration which may be developed.

As regards the fertilizer, in order that there may be no question about profits—and there can be no question about profits in that business, because of the competitive conditions I have stated—we say we will make it for 5 per cent of the cost, and then we will limit the amount further by taking $2 per ton as a limit to our total profit. So that if it costs more than $40, we will still only make $2 a ton and we propose to deliver that fertilizer in suitable condition, f. o. b. cars at plant.

Now, what does the Union Carbide Co. ask? It asks that you rent the plant, or that portion of the No. 2 nitrate plant which can be utilized for our own products and for the manufacture of fertilizer, and for that it will pay a rental of $150,000 per year.

The Union Carbide Co. recognizes that some other bidders might wish to put in plants and the Government might wish to put in plants, and it reserves 640 acres, or a square mile of territory, that can be utilized for any purpose the Government has need, or for the purpose of any other lessees. The Union Carbide Co. does not ask that the wonderful 60,000-kilowatt steam plant be turned over to them, that, we believe, has been quoted as worth four or five million dollars. We leave that in the possession of the Government.

We agree to maintain the fertilizer plant in a going condition at all times, with equivalent capacity. We have no connection with, nor do we ask anything of plant No. 1, which is a very great property and which has been included in some of the other proposals. That is free and belongs to the Government.

The total maximum amount of liability of the Union Carbide Co., under this proposition, would be, in the 50 years, $82,500,000 plus maintenance costs and royalties on limestone used from the Waco quarry at 5 cents per ton. That is what the Government might receive during the 50-year term for about one-half

the eight months and over class of power of Dam No. 2. The Government would retain and own the plant; the Government may take the plant on 5 days notice and we do not ask the Government to make any further power investment.

Now that, in a broad way, covers the proposal. I think it would be well, gentlemen, while you have the proposition before you, to take it up more or less seriatim and, if you desire, to ask questions about it.

As regards the question of fertilizer or hydroelectric power, as I have stated, we have Mr. Davis here to answer those questions; we have Mr. Becket on the fertilizer.

As regards the fertilizer, let me point out this. The Union Carbide Co. has acquired an option on the patent rights for the manufacture of the urea process through the cyanamid route. The plant at Muscle Shoals is designed to produce cyanamid. Cyanamid, I think, is not as desirable as other fertilizers and is certainly not as desirable as urea would be in agriculture. These patents covering the manufacture of urea are the result of the efforts of a most remarkable engineer, a Swede, Lidholm. Mr. Lidholm has manufactured as much, or perhaps more, cyanamid as any other man in the world, and recognizing the advance of the art he saw cyanamid, as such, as a fertilizer, would probably be doomed, and he determined to make a better fertilizer beyond cyanamid. He worked this out and the patents are now granted all over Europe, and the Union Carbide Co. owns options on those patents for the United States and Norway.

Urea has been subjected to experimental tests and has been found extremely well adapted as a fertilizer, so that I think we are in a position to say to-day that, as against the synthetic process developed at plant No. 1—as against the cyanamid process developed at plant No. 2, and as against the sulphate of ammonia, a byproduct—we probably have in urea the best fertilizer the farmer can use, and, second, can make it at a price which is as nearly competitive as the cheapest other source of artificial fertilizer. We feel that, perhaps, with experimentation and advanced studentship in this art, that urea may maintain its present position of supremacy; but no man can say the Haber process will not again take an advance, that the present difficulties of production will not be overcome, that the day may come when it will cost less to produce some other fertilizer than urea. But a better fertilizer than urea is not likely.

It is for that reason that business men hesitate to bind themselves to a single-production process, or to the production of an uneconomical fertilizer, nor, indeed, would this committee, on behalf of the Government, seek to tie anyone to an impossible contract; but they can tie anyone to a contract which gives the Government the advantages of experimental advances and put the business man into a position of adapting himself, under Government control, to those processes.

Now, if we should take up this proposal seriatim, I think it would bring the whole thing out very clearly. Under the head of "Lease," the Union Carbide Co. proposes to lease nitrate plant No. 2 and the Waco quarry for $150,000 per year and maintain the plant. It will also purchase 50,000 hydroelectric horsepower and, as stated before, it will pay the maximum of $15 per horsepower or $750,000 a year. That 50,000 horsepower represents much less than one quarter of the total production of power available from Dam. No. 2.

The fertilizer arrangement is quite liberal here and it explains itself. We will take 50,000 horsepower and turn it into 100,000 tons of fertilizer having a 20 per cent nitrogen content. I think it will do no harm to visualize that quantity. I want this committee to understand what they are asking the manufacturer to do, and I had some figures prepared. One hundred thousand tons of fertilizer per year occupies 2,500,000 cubic feet, and it would pave the Washington Mall, which is the wide strip of ground extending from the Capitol to the Lincoln Memorial, for 2 miles, 1 foot deep in a single year. If placed in box cars, the train would be 25 miles long, and that is loading the box cars to the maximum. The volume would be twice the bulk of the Washington Monument.

Now that is what we propose to do with that 50,000 horsepower this year, next year, the following year, and for fifty years, in accordance with the Government's instructions, and the farmers will get their 5,000,000 tons of nitrogen fertilizer from that source. I just want you to visualize that, because this is a large transaction, gentlemen. Let me repeat—it agrees to employ, in addition to the leased power above mentioned up to a yearly average of approximately 50,000 electric horsepower, equivalent to a production of upward of 100,000 tons of fertilizing material having a nitrogen content of 20 per cent in Nitrate Plant No. 2 in the manufacture of urea or phosphazote.

The word "phosphazote" is a trade name, and it means that combined fertilizer in which phosphorus is an element, and we give the Government the oppor-

tunity to alternate, and I am told, if it decides that we shall make phosphazote, the quantity production would be increased possibly 50 or 60 per cent, so that there would be practically 150,000 to 160,000 tons produced in that event.

As I say, the company agrees through the medium of cyanamid, under the Lidholm or phosphazote patents and processes, as the Government may elect, to sell the same to such agencies or purchasers as the Government may from time to time direct; and to do all reasonable research and experimental work to further develop, improve, and to cheapen such process or processes of nitrogen fixation; all at cost plus 5 per cent (such 5 per cent not in any event to exceed $2 per ton of 2,000 pounds of fertilizing material on the basis of a nitrogen content of 20 per cent). In such manufacture, research, and experimental work to utilize its knowledge, experience, and technical ability and use every reasonable effort to successfully carry into effect the purpose of said agreement. Licenses under said patents and processes to be without profit to us—in other words, we turn this thing in at cost—but subject to the payments to the owners of such patents and processes, of the cost of acquiring said licenses and the license fees available thereunder as fixed in the options hereinafter mentioned; the Government to assign and transfer to us the right and license to use for such purpose any and all patents, processes, methods, and designs with and under which nitrate plant No. 2 was designed or equipped to operate in the manufacture of cyanamid.

On that point of the patents and licenses, without full knowledge of the matter, and I believe the questions have never been legally interpreted as to whether there are certain obligations of the Government to the builders of that plant and to others who have patent rights, the Government will of course put us in a position to manufacture without embarrassment, or without our attempting to violate any patents belonging to others.

The Union Carbide Co. agrees to install such additional machinery and equipment as successful commercial operation may make necessary for the conversion of such cyanamid into urea or phosphazote at the request of the Government and, as the Government may elect, either at its cost up to but not exceeding $1,250,000, any cost in excess thereof to be borne by it (the company); or wholly at its cost, in which case such cost, with interest at the rate of 5 per cent per annum on unrepaid balances thereof, to be reimbursed to us from the rentals to accrue. That in the first few years will wipe out that obligation. I wish to explain that, as we are going into the manufacture of fertilizer without profit and it is necessary to put in additional equipment to modify the process there, that additional equipment belongs to the fertilizer proposition and belongs to the Government. Therefore the Government should pay the amount. We agree to build for the Government at cost, or the Government may build for itself, or we will do it and be reimbursed out of the rent.

Now as regards the amount of rent and the income of the Government from this hydroelectric power, we do not ask any postponement of these payments. When you turn on the power, we will be there to take it and our payments to the Government begin as soon as the switch is turned.

We agree to purchase from the United States such amounts of power as may from time to time be required for such manufacture, and of the grades as stated in Part II of said skeleton form of lease and at the same prices and terms or at such other more favorable prices and terms as the Government may from time to time elect. The words "other more favorable prices" refer to power for fertilizer only. We are bound on our own power under the proposal. But, supposing, gentlemen, it should be discovered that hydroelectric power at Muscle Shoals, because of the location and freight rates, at $15 a horsepower year, or $12.50 a horsepower year, on the average, using first primary and then secondary power, was not sufficiently low to give the farmers the fertilizer at as low a cost as you feel, or the Government feels, they should have it. There is no reason in the world why the Government should not remit the cost of power or reduce it to say $7.50, or remit the cost entirely and thus reduce the price to the farmers and, thereby, subsidize this manufacture of fertilizer to that extent for their benefit. It would make no difference to the Union Carbide Co. because its profit on the fertilizer is practically nil to begin with; so that remitting of power cost for the manufacture of fertilizer goes direct to the farmer and has nothing to do with our proposition. It would reduce the income of the Government, certainly, but if the Government wishes to subsidize this plant for the benefit of the farmer, God bless it.

Now, here is the point you were kind enough to ask about, the question of guaranteeing the manufacture of fertilizer. Should such manufacture and sale at any time in the future prove competitively impracticable or commercially

uneconomic—supposing somebody discovers a means of producing fertilizer at half the cost—neither the Government, nor the farmer, nor the Union Carbide Co. has any interest in going on and manufacturing a product that would not be salable, that would not be competitively possible. There is no use in wasting water power on an uneconomic proposition, and certainly the Government does want to. We have no question as to what the Government would do, but in that respect we are bound to go ahead and manufacture it at cost plus 5 per cent, with a limit of $2 so long as the Government asks us to. So we say should such manufacture and sale at any time in the future prove competitively impracticable or commercially uneconomic, then as the Government may elect and upon its request we agree, first, to manufacture as its agent cyanamide with facilities and on the general terms and conditions aforesaid and turn the same over to the Government or its nominees at cost plus 5 per cent.

Second, to operate as its agent other facilities. If the Government finds this present plan is uneconomic and it desires to go on manufacturing for the farmer, it can put up another plant and we will operate it with our facilitities for the Government in that vicinity for the manufacture of fertilizer at cost plus 5 per cent; or if the Government decides it is not a water-power proposition, if some new development comes in that requires operation elsewhere, some new discovery, then the Union Carbide Co. will cancel the contract for fertilizer production, together with the power which was to be used for that purpose. The Government is released as far as we are concerned and the Government is free to do anything it decides upon as best for the farmer and to make any arrangements with anyone else for the production of nitrogenous fertilizer that it chooses.

Now, it seems to me, in answer to your question, sir, that that is as far as anyone can really go. I feel that this offer to manufacture it for the Government in its present facilities, to manufacture it for the Government in any other facilities that it may establish in the vicinity, or to release the Government from its contract, so that it may make a contract with others better qualified, better able, or having a better process, is about as far as business men can go in the light of the uncertainty of 50 years in the future, and it seems to me that is a businesslike offer that will prove attractive to you gentlemen who want to do no injustice to any bidder and who want to accomplish this great object for the farmer.

Mr. McKenzie. If you will pardon me, right there, I will simply say, as far as I am personally concerned, I am absolutely opposed to the principle of the Government undertaking to operate this or any other plant, either directly or through agencies, and that is one of the conditions of your offer.

Mr. Morrison. Well, to meet that condition, sir, if some other bidder should get Muscle Shoals, we will act, under our written provisions here, as the agent of that other bidder, so far as our proposal goes. The Government having disposed of the property, we will act for the Government for the successful bidder, or we will act for ourselves in fulfilling the contract.

Mr. Quin. Mr. Chairman, is this the contract or bid that certain people were to offer in here, or is this separate and distinct from the Alabama Power Co. interests?

Mr. Morrison. I am very glad that you asked the question. I stated, when I first came in, that we have no connection with any of the other bidders. This is an independent separate bid.

Mr. Quin. Mr. Chairman, where is the bid we were going to have from them?

The Chairman. It is here.

Mr. McKenzie. This has no connection with that proposition.

Mr. Morrison. Here is a statement in the proposal that emphasizes particularly our point as to the present status of the art of fertilizer manufacture, and our reason for believing that we have, at the moment, the best possible process for the farmer and others. While it is probably true that none of the existing methods of artificial nitrogen fixation will fix nitrogen at as low a cost as Chilean nitrates under ideal conditions might theoretically be produced; that is, should improved processes be adopted in Chile and Chile should take off the tax, there is probably no artificial method of producing nitrates as cheaply as that. But that is a theory; we do not think that Chile will take off the tax; there is market enough for their product throughout the world without the United States.

Nor do we think the existing methods of artificial nitrogen fixation will fix nitrogen at as low a cost as ammonium sulphate (a by-product of coke ovens)

is produced. Now, we think ammonium sulphate is and can be produced lower than any method of producing nitrogenous fertilizer by hydroelectric power. We say several practical processes are available for use at Muscle Shoals, which, even allowing a reasonable price for electric power and reasonable license fees under patented processes, will produce fixed nitrogen at considerably less than the present or prospective market prices of Chile nitrate or ammonium sulphate based on an equivalent nitrogen content, and will thus materially aid in meeting the needs of the agriculture of the Nation of a greater amount and lower cost of fertilizer.

Now, we assert, and without reasonable fear of contradiction, that in our opinion, after exhaustive investigation, that we have in urea or phosphazote a real solution of the problem, and that it can be produced at Muscle Shoals under present conditions at much less than the selling price to the farmers to-day.

The processes I have also referred to are the processes for the direct synthetic production of ammonia and processes for the fixation of nitrogen through the medium of cyanamid.

Now, the direct synthetic production of ammonia means plant No. 1. We ask nothing regarding plant No. 1; it is left in the possession of the Government and may be utilized for the manufacture of fertilizer by that process. And I might suggest, as an interesting possibility, that with plant No. 1 on the synthetic process and with plant No. 2 on the urea process, there will be a pleasant rivalry between the two development organizations to see which would successfully beat the other. The Union Carbide Co., in this matter, has no jealousy, has no desire to do other than to serve the country, if the synthetic process of nitrate plant No. 1 should be successful and the Government should so want to do, the Union Carbide Co. will cancel its contract for the manufacture of fertilizer at plant No. 2, and you have free plant No. 1.

Mr. McKENZIE. If you will pardon me, right in connection with the statement you have just made, is it not a fact that if we accept your proposition that the Government would still have this white elephant on its hands, all except the trunk, and you would have that? If we enter into this contract with you and retain those properties there, would not we still, as a Government, have a white elephant on our hands?

Mr. MORRISON. Well, you would have it on your hands, but I should not call it a white elephant. The Government has a very valuable asset at Muscle Shoals. We are taking a small part of that asset and paying a very considerable price for it, and, included in that, is the prospect of making fertilizer, wherein you utilize our skill and experience over many years, and we are practical people. What you have left is quite as valuable, in fact, more valuable, than what we take, and is readily salable. It is no white elephant, but you must remember that the Union Carbide Co. is not in the hydroelectric power business. We do not manufacture and sell power. We manufacture power for our own uses in two of our plants, but we do not want to step outside of our regular commercial line and become power developers and build up a system of distribution of the excess power which is left on your hands there. Probably others would want to do that. But what we do is to pay you a very considerable amount for a small amount of this power.

One thing more; we ask you to make no appropriations for additional power, no appropriations for additional development in any direction, and we leave in your hands that valuable 60,000-kilowatt steam plant, and nitrate plant No. 1, to do with as you will. If you characterize it as a white elephant, I would say "No," it is not a white elephant, it is a very valuable asset, and one of the fine features of our proposal is the fact that we leave so much and take so little.

Mr. McKENZIE. I hope you will not misunderstand me.

Mr. MORRISON. Not at all.

Mr. McKENZIE. My reference to a "white elephant" is with reference to the Government trying to keep this property under its control and operate it, either directly or through lessees or agents. That is what I mean. I know that it is a valuable property; I am not discounting that for a moment.

Mr. MORRISON. Yes; I think you would find others that would be willing to take over that property, with all its additional hydroelectric power, and perhaps whoever gets it would be very glad to have somebody take the grief of the manufacture of fertilizer. If such an arrangement is brought about, we stand ready to carry out the contract with any other lessee of the Government, or with the Government direct.

Mr. McKENZIE. I do not want to take up your time in asking questions, but I just want to ask you one pointed question and then you can answer it as you see fit: Is it not a fact that under your proposal you take absolutely no chance

whatever? You simply go in as the lessee of the Government, or the agent of the Government, to perform certain services in a sense for the Government and one of two things must happen. We have the proposal from very good business men to take over the water power. If we grant those gentlemen the right to build the dam and to take over the water power, then we will have to make an arrangement with them to furnish to you the necessary power to do the thing that we wish to have done and, as a matter of fact, you have in this contract a guarantee that you will not lose. But how about the other end?

Mr. MORRISON. Do you refer to the Government or do you refer to another lessee?

Mr. MCKENZIE. Is it not a fact that you are not in a position to lose anything? You agree to take their 50,000 horsepower, to work for the Government in the manufacture of the product the Government desires to have manufactured, and then you wish 50,000 horsepower additional to manufacture your own products?

Mr. MORRISON. Yes.

Mr. MCKENZIE. Now, is it not a fact you would get a location on one of the best water-power sites in the country and be guaranteed 50,000 horsepower for your own purposes, and on the work which you are to do for the Government you take no chance whatever?

Mr. MCKENZIE. I want you to explain it. I am not criticizing you for that, but I want to know what it means.

Mr. MORRISON. Yes. I think what you say raises a question which I will explain. In view of the fact that the production of fertilizer for agriculture at cost is contemplated by the Government, and that is one of the conditions under which any contract with anybody must be made, there is no reason why a business man should go in and take the risk when the profit is absolutely limited. There is no profit. The business man can not take a risk for 50 years of losing $10 a ton on 100,000 tons per annum.

Mr. MCKENZIE. I understand that, and I am surprised at your stockholders—I am not surprised that stockholders in your company would insist that you submit the very proposal which you have, because stockholders, I am certain, would never consent to a corporation making a proposal of limiting the profit at one end and leaving it wide open for losses on the other end. And one of the virtues of Mr. Ford's offer, if I may be permitted to state, comes from the fact that he is not representing a corporation; he is representing himself, and he can make an individual offer assuming to take the losses which he does; but, if he had stockholders, his stockholders, I am certain, would not stand for his proposition.

Mr. MORRISON. Well, I do not wish to make any comparison between our proposition and Mr. Ford's. Mr. Ford is a very fine and beneficent gentleman, and he is at liberty, of course, to do anything he chooses with his own. I feel that if your position is sound, it should be insisted upon that the obligation to manufacture in spite of losses is very clearly set forth.

Mr. MCKENZIE. Absolutely; I agree with you.

Mr. MORRISON. Clearly, very clearly set forth.

Mr. MCKENZIE. Understand, I am not criticizing you for putting your offer as it is.

Mr. MORRISON. No. Now, I will say as regards the Union Carbide Co. that it will not enter into any contract that absolutley binds it to manufacture fertilizer under uneconomic conditions and to pile up 100,000 tons per year for 50 years; nor will it undertake to manufacture the fertilizer at a loss. Not that the Union Carbide Co. is not as generous and patriotic as any other person, but it could not do so, because of its stockholders.

Mr. MCKENZIE. Absolutely.

Mr. MORRISON. Now, if, as a matter of fact, Mr. Ford makes a perfectly definite proposition to manufacture fertilizer, whether or not, whether new processes are developed, which he does not possess, that will manufacture it at half of the cost, and to pile up that fertilizer because there is no demand for it at his cost, why if he does that it should be very clearly set forth in the arrangement.

Mr. MCKENZIE. Yes; I agree with you.

Mr. MORRISON. That is the point; otherwise, you might do an injustice to the bidders in good faith who go just as far as sensible business men can go on that proposition. Now, we do not want to undertake the manufacture of fertilizer per se, because we think that our business and talents and experience which we put into that are going to detract just so much from our progress in other directions. There is a limit to human capacity; I think there is a limit to Mr. Ford's capacity. Now, we want some compensation for undertaking that thing. What is the compensation we ask for? We ask the privilege of buying

from the Government, or any other lessee, or lessees of the Government, hydroelectric power at the highest price which we consider it reasonable, as business men, to offer to pay for that hydroelectric power in that particular locality. We expect to expand our business and make our profits there from this power, and that is the reason we are undertaking the manufacture of fertilizer. But I want to reiterate that we will not undertake to bind ourselves for fifty years to manufacture fertilizer by any process, whether or no, but we will bind ourselves to do everything the Government asks us to do to try any process in the vicinity allied to this particular method. That is as far, I think, as reasonable business men can go.

Mr. SPEAKS. In view of the fact that your company is not willing to obligate itself to manufacture fertilizer for a definite term of years, and another business man, a responsible bidder, has expressed his willingness to assume such obligation, would you not consider that it would be proper for the Government to enter into a contract with that other party?

Mr. MORRISON. No; and I will tell you why. The Government can not enter into a contract which has not some equity in it, and no contract is valid which asks the impossible. I would say it would be a mistake for the Government to enter into a contract depending upon philanthropy or depending upon anything other than sound and equitable business relations. You can not do the impossible for over 50 years. Men die; conditions change and no one will enter into a binding contract for that period.

Now, if there are any questions regarding the merit of our fertilizer area, or the technology of it, Mr. Becket is here. Anything regarding hydroelectric power which you desire to ask about it, Mr. Davis is here to answer. So far as I am concerned, I will answer all questions I can answer, but I am not a technical man.

Mr. HULL. You have in your contract the purchase of power from the Government. Now, if we make the proposed contract with the Southern utility Co. you would have to buy your power of them?

Mr. MORRISON. Yes.

Mr. HULL. Would that be satisfactory?

Mr. MORRISON. Entirely so.

Mr. HULL. You do not expect the Government to dictate to them what they shall do; they are under the Federal power act. They would have to operate, I suppose, under that.

Mr. MORRISON. If any other bidder should secure the contract for the whole hydroelectric power and cares to leave to us, under these conditions, power at the prices stated in this arrangement, we will probably take it. Whether or no they care to have us make fertilizer, they may have some other plan for making fertilizer, but if they want us to take the power and make the fertilizer, we will carry out this agreement, if the other party cares to do it. They might say "I will not sell for $15," or they might not be willing to sell for $20; they might refuse.

Mr. HULL. You provide in your contract this fertilizer is to be manufactured at a 5 per cent profit?

Mr. MORRISON. Yes.

Mr. HULL. Of course that is simply 5 per cent plus the cost?

Mr. MORRISON. Five per cent of the cost.

Mr. HULL. Well, it is added to, it is what we call a cost plus contract?

Mr. MORRISON. Yes, sir.

Mr. HULL. Five per cent plus?

Mr. MORRISON. Yes, sir.

Mr. HULL. How do you figure the cost?

Mr. MORRISON. That is up to the Government. We will submit to any system of mathematics which will prove what the actual cost is.

Mr. MCSWAIN. There is not but one system of mathematics.

Mr. MORRISON. The limit which we place of $2 per ton precludes any possibility of the desire on our part of increasing that price in order to increase our compensation.

Mr. HULL. The $2 is the maximum amount that could be charged against the fertilizer?

Mr. MORRISON. Exactly.

Mr. HULL. And it would be as much less as 5 per cent is over the cost?

Mr. MORRISON. Exactly; that is the point. I think this is a new feature in any proposal I have seen. We thought that was fair, because it gave you a specific amount, you know.

Mr. HULL. Of course, that is different. I thought the 5 per cent of the $2 were both arbitrary.

Mr. MORRISON. No.

Mr. HULL. Two dollars is the maximum, and that is an arbitrary limit. Five per cent is also in the contract, and it will be as much less as the $2 is less than 5 per cent?

Mr. MORRISON. Exactly.

Mr. HULL. You have a combination of the fixed maximum and a per cent on the cost.

Mr. MORRISON. Yes.

Mr. HULL. How often do you turnover in fertilizer?

Mr MORRISON. That is a question that presents a great many difficulties. I do not know what to say. We will manufacture the fertilizer; we will have it there ready, in adequate quantities, as fast as purchased. We will put it f. o. b. cars in condition for shipment, ready. We will always have an adequate supply. Beyond that, we can not say. If the business is very seasonable, we might have a vast supply there at some time; but we agree to meet all demands, as fast as they come in, and that is a practical way of handling it.

Mr. HULL. Of course, the object of my asking that question is very many people become confused when they hear of a cost-plus contract. The cost-plus contract may be all right, but it all depends on the number of turnovers you have within a year. Now, 5 per cent is not very much if you only have one turnover per year; but if you have 20 turnovers in a year, you have 100 per cent profit in a year. You see the point? It all depends on your turnover. I am a layman on this; I do not know how many turnovers you have.

Mr. MORRISON. I can answer it completely. We will have a turnover of 100,000 tons per year, on which we make a profit of 5 per cent, or not to exceed $2 per ton. When I say "profit," I know there is no profit in that, as a matter of fact; but that is the protection which the Government requires for the farmer, and we meet that, so that there will be one turnover of 100,000 tons per annum—that is all there is to it—at so much per ton. You can not change that.

Now, as regards the 5 per cent: If some process be devised which would enable us to make fertilizer at $20, our profit would be $1 a ton; if it was $30 it would be $1.50 a ton; and if it was $40, it would be $2 a ton. If it was $100 a ton, it would still be $2 a ton profit, under our agreement.

Mr. HULL. But, at $40 a ton it would just be exactly the $2, would it not?

Mr. MORRISON. Yes, sir.

Mr. HULL. And if you could produce it for less, why it would be less than the $2?

Mr. MORRISON. Our compensation would be less by the ratio.

Mr. HULL. What I would like to know is what do you call the cost of production? Do you count something on your stock or just the labor cost, the power cost, the rental cost—of course all those go in naturally. But are there any additional costs?

Mr. MORRISON. The mental costs?

Mr. HULL. Are the salaries of the officers to be included? How much are you figuring for overhead? That is a very interesting question.

Mr. MORRISON. We will submit to any form of reasonable regulation regarding that. As for mental costs——

Mr. MCSWAIN. He did not say the mental costs, he said rental.

Mr. HULL. No; I did not say "mental." I put it in another way; I said "officers." Those things all ought to be somewhere; I do not know that we can work it out.

Mr. MORRISON. Mr. Hull, I think your question is perfectly sound. The cost would include ordinary superintendence; it would include all the men you employed; it would include the cost of raw material. It would include water power and the transforming of raw materials to finished products by the use of that water power, and I would say fairly, it would include a fair interest charge on the capital involved in the holdings of the stock of produced fertilizer awaiting shipment, because all those things are fair, equitable, and reasonable.

Now, in this proposal we say these details are to be worked out on a reasonable, equitable basis, and you will find a very generous disposition on the part of the Union Carbide Co. in meeting the Government.

Mr. HULL. I think you are right now, in regard to that matter. What I wanted to draw out is whether or not you would expect to charge overhead, which might accrue up here at Niagara Falls, against the plant down there.

Mr. MORRISON. It is all tied to the plant, all tied to fertilizer; it is the production of fertilizer—what it costs to produce it.

Mr. HULL. And just the actual investment of the capital down there?

Mr. MORRISON. Exactly.

Mr. HULL. That is all right.

Mr. MORRISON. In my opinion, we go into this thing as any concern will, on the cost to produce it. The Government may ascertain that cost; the farmers may ascertain that cost. It is a question of mathematics. If it is a question of some charge and the Government thinks it unreasonable, it will be eliminated; if it is a reasonable and proper charge it will stay in. It is a business proposition.

Mr. MCSWAIN. You have read the Ford offer?

Mr. MORRISON. Yes.

Mr. MCSWAIN. Did it occur to you, in making your offer, to provide that the item of cost might be approved by an impartial board, very much the same way as he proposes?

Mr. MORRISON. I think we have it very much preferable.

Mr. MCSWAIN. You did not put it in your offer?

Mr. MORRISON. That is implicit. No one can object, as I have been saying, to let us get at the facts.

Mr. MCSWAIN. You amend your offer in that respect?

Mr. MORRISON. Oh, certainly—an impartial board. We never want the question to arise between us and the lessor or the Government on this particular proposal, and you can write that into the contract.

Mr. HULL. You speak of the highest price. How does the price you propose in here compare with the price the southern companies are supposed to pay the Government? Do you know that?

Mr. MORRISON. Well, I have not figured that out. I think it is a very close approximation to that price. I think it is a bit higher.

Mr. HULL. Just one more question. I do not know whether you would care to answer this, but you have rather implied an answer. You have read the Ford contract?

Mr. MORRISON. Yes.

Mr. HULL. Do you consider that he is bound to manufacture this 40,000 of fixed nitrogen under that contract? You said that we ought to be sure that he was.

Mr. MORRISON. I think the lawyers of the committee are well qualified to pass on that question. [Laughter.]

Mr. GARRETT. I think your answer is well made. It is strictly a legal question and not for a layman.

Mr. QUIN. Where is your corporation domiciled?

Mr. MORRISON. It is a Virginia corporation with headquarters in New York, and plants in Niagara, Sault Ste Marie, and Welland, Canada.

Mr. QUIN. Are there any holding companies or other corporations directing or controlling or interesting in this concern?

Mr. MORRISON. The Union Carbide Co. is a subsidiary of the Union Carbide & Carbon Corporation. The reason that the Union Carbide Co. undertakes this contract as an individual corporation is because it is directly in line of their manufacture. Other subsidiaries of the Union Carbide & Carbon Corporation make a large variety of products some of them far and away from hydroelectric developments.

Mr. QUIN. Where is the domicile of that?

Mr. MORRISON. The Union Carbide & Carbon Corporation is 30 East Forty-second Street, New York.

Mr. QUIN. Are these folks allied in any way with the power companies that produce the current—the power?

Mr. MORRISON. No. We are buyers of power in most cases. The Union Carbide Co. is a buyer of power at Niagara Falls and one of the largest users of power there. It is also a buyer of power from its own subsidiary at Sault Ste. Marie, Mich., where we have an arrangement with the Government, and we built certain remedial works and got compensation for that, and for a fee per annum we get the power there. So that, in that particular, we manufacture our power. We are buyers of power at Niagara Falls.

Mr. MCSWAIN. Is the stock listed for sale on the New York Exchange?

Mr. MORRISON. The Union Carbide Co.'s stock is not listed for sale on the New York Exchange. It is a subsidiary of the Union Carbide & Carbon Corporation.

Mr. MCSWAIN. What is it worth?

Mr. MORRISON. The stock of the Union Carbide & Carbon Corporation is quoted at 58.5 this morning. It is not listed on the New York Stock Exchange but it is listed on the Chicago Stock Exchange.

Mr. McSwain. What is the entire capital issue?

Mr. Morrison. Of the Union Carbide Co.?

Mr. McSwain. No; of the Carbide & Carbon Corporation.

Mr. Morrison. The Union Carbide & Carbon Corporation has a stock issue of 2,600,000 plus shares. I do not know the exact number.

Mr. McSwain. Now, then, the Carbide, this subsidiary?

Mr. Morrison. The Union Carbide Co., as a subsidiary, has $39,000,000 stock issued. All question of financial responsibility can be answered in the affirmative, and we refer you to Poor's Manual for all the details in regard to this structure known as the Union Carbide & Carbon Corporation.

Mr. Speaks. Would any part of the cost plus charged against the manufacture of fertilizer at Muscle Shoals be a per cent of the Carbide & Carbon Co.?

Mr. Morrison. Not at all; in no way whatever.

Mr. Speaks. Awhile ago you visualized the great volume of fertilizer, did you not?

Mr. Morrison. Yes.

Mr. Speaks. Can you apply that same volume to acreage, so that we **migh** have just a little understanding of what it means?

Mr. Morrison. Well, we have a wizzard here who might figure that. The statement which I made was prepared for me by Mr. Lee, of our company. It is a quantity which occupies 2,500,000 cubic feet. Now, Mr. Lee, will you kindly figure that at 43,000 cubic feet to the acre, and we will have the acreage. It would pave the Washington Mall for two miles.

The Chairman. I might suggest that you put that into the hearings after Mr. Lee has been able to work it out.

Mr. Morrison. Yes, sir.

Mr. Garrett. Figured at the average per ton of fertilizer used to the acre.

Mr. Speaks. How many acres will it renew or fertilize?

Mr. Garrett. At, say, at an average of 250 pounds per acre. That is a question of calculation.

Mr. Morrison. I am not a mathematicion or astronomer, but it is a very large figure. Mr. Lee will file that.

The Chairman. Can Mr. Lee furnish that offhand, right now?

Mr. Morrison. Mr. Lee, do you know how many acres 100,000 tons of 20 per cent nitrogen content fertilizer, distributed 250 pounds per acre, will fertilize on the basis of 2-8-2?

The Chairman. You can put that into the record.

Mr. Morrison. We will be very glad indeed to do so. Mr. Lee says 8,000,000 acres.

The Chairman. Is there anyone else from the Union Carbide Co. who is ready to go on this morning?

Mr. Morrison. Is there are no further questions, I think there will be no necessity to take any more of your valuable time. Permit me to state that we deeply appreciate your courtesy this morning and to add that the Union Carbide Co. holds at the disposal of your committee for any information at any time all of its people.

The Chairman. I want the Union Carbide Co. and all companies to realize that this committee is after information and for that reason, we are glad that you are able to give us such information as the members have called for.

Mr. Morrison. Thanks, sir.

Mr. McSwain. I think that is 800,000 acres instead of 8,000,000 acres. [Laughter.] That is the kind of information we want. It is 800,000 acres instead of 8,000,000 acres.

Mr. Quin. Four million they said.

Mr. McSwain. I know, but then they changed it to 8,000,000; but it is 800,000.

Mr. Morrison. It is 8,000,000 acres. It may be possible the committee would like to ask a few questions regarding power, and Mr. Davis has a vast fund of information on that subject.

The Chairman. Would any one like to ask Mr. Davis some questions?

Mr. Quin. Mr. Chairman, it occurs to me that all of the academic part of this has been made very plain to this committee and it is the guts of this proposition that we want to get through with, and get to go on, is the way I look at it.

The Chairman. Of course, the committee is very anxious to get down to the condition you speak of; yet we feel if anybody has anything to offer the committee we would like to hear it.

STATEMENT OF MR. L. H. DAVIS, HYDROELECTRIC ENGINEER, APPEARING ON BEHALF OF THE UNION CARBIDE CO.

Mr. HULL. Mr. Davis, you are producing power up at the straits, are you not?

Mr. DAVIS. Yes.

Mr. HULL. What do you pay up there for power?

Mr. DAVIS. We paid for a number of years $15 per horsepower year for primary power.

Mr. HULL. For primary power?

Mr. DAVIS. Yes.

Mr. HULL. What are you paying now at Niagara?

Mr. DAVIS. Some of our contracts, they vary in Niagara, are as low as $14 per horsepower year for primary power, and the more recent contracts are somewhat higher. Power from the Canadian side has been as low as $12.50 per horsepower year for primary power; secondary power, in some cases, has been much lower than that.

Mr. HULL. Those places compare, as I understand it, with the prices you proposed in your offer here?

Mr. DAVIS. Yes.

Mr. HULL. Along that same line?

Mr. DAVIS. Yes. I might say, also, that we are buying power in Norway for less than $7 per horsepower year.

Mr. HULL. Right on that question, it is very interesting: Are there any places in this country—what is the cheapest power sold, hydroelectric power?

Mr. DAVIS. The cheapest power depends upon your location. Power is not necessarily the prime consideration. For instance, we could not afford to have the output of our Niagara plant on the Pacific coast if the power were given to us.

The CHAIRMAN. Why not?

Mr. DAVIS. Because the cost of distribution—that is, freight rates—is the governing consideration. We would not change our plant at Niagara to the Pacific coast if somebody would say "you can have every bit of power for nothing." Similarly, in regard to Muscle Shoals. Muscle Shoals is not in the center of a consuming area. Niagara is much better situated, and we could afford to pay more at one place than another on account of the difference in the cost of distribution, interest and other things such as supplies of raw materials.

Mr. HULL. What I am trying to find out is what is the low price of hydroelectric power. I am trying to get a comparison so that we can see, if we can find out, how the price we are to receive down there compares with the prices at other places. I simply want to know we are getting a reasonable figure.

Mr. DAVIS. The figures we have given seem to be fairly reasonable and quite in line with what we have been paying for many years in other places. They are as high as we can afford to pay at that point.

Mr. HULL. The prices that you propose in here, if I understand, if I can figure rightly, are somewhat higher than the Government receives under their proposed proposition from the Southern Utilities Companies.

Mr. DAVIS. I think our prices work out somewhat higher for the amount of power we use than the general average of the southern power companies.

The CHAIRMAN. Is there any further statement you want to make?

Mr. DAVIS. I think there is only a very little I might say in addition, Mr. Chairman. I merely want to point out that, in the installation that the Government now proposes to make at Muscle Shoals, which I believe is to consist of eight hydroelectric units, the total power, on an average, which it would be capable of producing would be about 200,000 horsepower. Of that 200,000 horsepower, our proposal contemplates the use of just about one-half; a little more than one-half, when you come to take it on the basis of the continuity of the power. So that if we were awarded the amount of power which our proposal calls for, the Government would still have almost as much as eight months' power and all of the less than eight months' power left for disposal to other parties; and our proposal, for that approximately one-half of the available eight months' power, means an annual return of nearly $1,500,000 which would start just as soon as we began to use the power and does not call for an interim of several years in preparatory work.

The CHAIRMAN. We are very much obliged to you for your statement. I see Mr. Yates is here and I think he agreed to make a statement this morning, in which the committee is very much interested, so we will ask Mr. Yates to take the stand.

Mr. DAVIS. It might be that some members of the committee would like to ask a few questions regarding the merits of the fertilizer we propose to produce. If that is desired, we will answer them, either now or at a later date.

The CHAIRMAN. Should they want to ask any questions of you, within a day or two, we will let you know.

Mr. DAVIS. I thank you.

FURTHER STATEMENT OF MR. E. A. YATES.

Mr. YATES. Mr. Chairman, our proposal on fertilizer was handed to the Secretary of War, and I presume there are copies here this morning.

The CHAIRMAN. I think there are copies, although the Secretary, as I understand, has not sent the copies to the House as yet.

Mr. YATES. Yes, sir.

The CHAIRMAN. So that it is not officially before the committee. But we kind of anticipated it, and so we have the copies.

Mr. YATES. I would suggest that I might be permitted to read our offer, Mr. Chairman, if it is satisfactory to the gentlemen of the committee.

The CHAIRMAN. Make the statement you desire to make, Mr. Yates.

Mr. YATES. This offer is dated Chattanooga, Tenn., January 24, 1924.

The honorable the SECRETARY OF WAR:

To provide for the manufacture of nitrogen and fertilizers at or near Muscle Shoals, Alabama, and the sale and distribution thereof, the undersigned submit the following proposal:

1. We agree to organize a corporation for such purposes with an initial capital of five million dollars and the right to use one or more processes which have been commercially developed for the fixation of atmospheric nitrogen and for the manufacture of phosphoric acid.

2. The lessee under the proposal to the Secretary of War dated January 15, 1924, made by the Tennessee Electric Power Company, Memphis Power & Light Company, and Alabama Power Company, shall guarantee to the United States that the provisions of this proposal will be duly complied with and shall contract for fifty years to deliver to the company on the lands mentioned below at cost the one hundred thousand horsepower of electric energy for the manufacture of fertilizer provided for by said proposal of January 15, 1924, and, on reasonable notice, up to an additional 40,000 horsepower for similar use at rates and on terms prescribed by the Federal Power Commission. Upon receipt of any such notice the power company will be required to notify its customers of the amount of power thus required for fertilizer purposes, and such power shall thereupon be withdrawn from any service in which it at the time may be used and shall be made available for the fertilizer company. Said lessee may enter upon the plants and properties mentioned below for the purpose of carrying out the terms of this proposal in pursuance of said guaranty, and its obligations hereunder, including the provisions of the capital mentioned above, shall be deemed expense of its operation.

3. The United States shall lease to the company for fifty years all of the property constituting nitrate plant No. 1, as officially known and designated, at a rental to be fixed by authority of Congress and include in the cost of manufacture of fertilizer under this offer, such lease to include the rights, licenses, and privileges to use any and all patents, processes, methods, and designs which have been acquired by the United States and may be transferred with said plant. The lessee company shall agree to maintain nitrate plant No. 2 in its present state of readiness so long as the Government may desire for immediate operation in the manufacture of materials necessary in time of war for the production of explosives, the expense thereof to be either included in the cost of the manufacture of fertilizer under this offer or deducted from the rent payable under said proposal of January 15, 1924, as may be determined under authority of Congress; this obligation to cease when said plant No. 2 is operated for or under authority of the Government. The lessee shall be entitled to make alterations in said plant No. 1 for the purpose of carrying out this proposal.

4. The company shall construct and install on some of said lands the necessary plant and equipment to produce, and it will produce annually fertilizers which contain fifty thousand tons of fixed nitrogen as rapidly as there may be a commercial demand therefor at the price herein provided for; such fertilizers to be in the form of ammonium phosphate, ammonium sulphate, or other concentrated nitrogenous fertilizers. As soon as this proposal is accepted by the United States, the company will commence the construction of the first unit of the plant

sufficient to produce annually fertilizers which contain at least five thousand tons of nitrogen, and will complete and place the same in operation as soon as possible after the power for the operation thereof is available from Dam No. 2.

5. The company will agree to offer the products of said plant for sale to farmers and other actual consumers of fertilizer, including associations of such farmers and consumers, and will so fix the price thereof that the maximum net profit which it shall make in such manufacture and sale of fertilizer products shall not exceed 8 per cent of the fair actual annual cost of production and sale thereof.

6. The Secretary of Agriculture may from time to time prescribe regulations for distributing the products of said plant in accordance with this offer. He may from time to time appoint and remove boards, consisting of one or more representatives of his department, one or more farmers or representatives of farmers' associations and a nominee of the company to supervise the enforcement of such regulations and to advise with the company from time to time as to the price to be charged farmers and other actual consumers and users of said products. The company may also, under authority and regulations prescribed by the Secretary of Agriculture, use part of said power in the manufacture of calcium arsenate or other insecticides for use by farmers and others.

7. The corporation shall agree to file annually with the Secretary of Agriculture statements showing the cost and profits of the corporation from the operations under this offer, to permit the audit and verification of such statements by said official, and if during the year covered by any such statement the corporation shall have made profits in excess of those permitted by this offer, such excess profits shall be deducted from the cost of the products sold during the calendar year in which such statement is settled.

8. The United States shall have the right, upon five days' notice, to take over and operate the company's plant hereunder, whenever necessary in the national defense, but in such case the United States shall reasonably compensate the company for the use thereof and shall protect the company from losses occasioned by such use (other than profits which the company might have made during such use), and shall return the property in as good condition as when received.

9. In addition to any other remedies that may be possessed by the United States, the company agrees that the Attorney General may on request of the Secretary of Agriculture institute proceedings as provided in the Federal water power act for the purpose of remedying or correcting by injunction, mandamus, or other process any act of commission or omission in violation of any of the terms of the contract resulting from the acceptance of this proposal or of the lease hereinabove provided for, and in case of the failure of the company to comply with the final decree entered in any such proceedings, the Attorney General may, on request of the Secretary of Agriculture, institute proceedings as provided in said Federal water power act, for the purpose of revoking said lease or this contract.

10. The undersigned may, in discharge of their obligation hereunder, organize a corporation with the rights and capital provided for above, and cause it to contract with the United States to carry out the terms of this offer.

Respectfully,

THE TENNESSEE ELECTRIC POWER CO.,
By W. M. FLOOK, *President.*

THEODORE SWANN.

MEMPHIS POWER AND LIGHT CO.,
By E. W. HILL, *Vice President.*

RAYMOND F. BACON.

ALABAMA POWER CO.,
By THOMAS W. MARTIN, *President.*

LOUIS C. JONES.

Mr. YATES (continuing). In making this proposal to the Government there are associated with the companies in the signing of this offer several gentlemen who will be connected with the fertilizer company, either as directors or technical advisors or officials, and these gentlemen, combined, based on their past experience, will constitute a completely rounded-out organization for the design, construction, and operation of these plants and for the distribution of the product.

These gentlemen have experience, technical, manufacturing ability, and actual performance, in the manufacture of phosphoric acid and ammonia and a long experience in the manufacture and sale and distribution of fertilizer.

They are here to-day. They are ready and willing to testify before this committee on any questions that the committee may desire to ask with respect

to fertilizer, the manufacture of ammonia, and the manufacture of phosphoric acid. I will give the names of the gentlemen and a brief statement, and then I would like to continue and possibly to answer any questions and then have these other gentlemen testify.

Dr. Raymond F. Bacon, an industral chemical engineer of New York City: Doctor Bacon is an authority on these matters and his professional life has been devoted along commercial and research lines, except during the war, when he served as a lieutenant colonel, as second in command of the Chemical Warfare Section of the American Expeditionary Forces in France.

Dr. Louis C. Jones, an industrial chemical engineer of New York City: Doctor Jones is an authority on the manufacture of synthetic ammonia, and for the past several years was associated and connected, in charge of the design and construction and the successful operation, with a synthetic ammonia plant at Syracuse, N. Y.

Mr. E. M. Allen, president of the Mathieson Alkali Works (Inc.), of New York City: Mr. Allen's company is now successfully manufacturing synthetic ammonia at Niagara Falls and his experience and his processes are available under this offer.

Mr. Theodore Swan, president of the Federal Phosphorus Co. and the Federal Fertilizer Co., both operating in Alabama: Mr. Swan's companies have been making phosphoric acid by the electric-furnace method and are now engaged in the sale and distribution of fertilizer in the South. Mr. Swan is without question the best informed man in this country on the manufacture of phosphoric acid.

Mr. William Callan, who is associated with the Mathieson Alkali Works and his experience has been in connection with the distribution and sale of commercial fertilizers. Mr. Callan will be able to go into this subject in great detail.

In this group we not only have a selection of men with brains and ability, business and technical, and performance behind them to assure the success of this fertilizer proposal, but we also have a right to use the essential processes which are necessary to produce fertilizer or which may be used for fertilizer, as follows:

The Mathieson process, as developed by the Mathieson Alkali Works at Niagara Falls, which is now operating successfully for the manufacture of synthetic ammonia.

The American process, developed in the Fixed Nitrogen Research Laboratory at Washington, under the direction of the Secretary of Agriculture. This laboratory and the work it has accomplished should receive the greatest praise for the development made along the lines of synthetic ammonia. Their developments are now at a stage where they positively know not only the cost of production but the cost of building plants, and they are ready with the designs complete for any size plant that may be desired.

The Casale process for the manufacture of synthetic ammonia is now in successful operation abroad and a plant is being installed at Niagara Falls, and there is no question about the commercial success of this method.

The CHAIRMAN. Is that on the American side or the Canadian side?

Mr. ALLEN. The American side.

Mr. YATES. I can not tell you. I would say Doctor Bacon has been abroad and has studied these foreign processes, and if the committee should desire to ask him any questions he might give them some interesting information.

The CHAIRMAN. Of course, the question has been answered, that it is on the American side.

Mr. YATES. Yes, sir. In addition to these processes for the manufacture of synthetic ammonia we have the experience of Doctor Bacon and Doctor Jones who can be relied upon to design, construct, and to successfully operate the plants for the manufacture of synthetic ammonia.

We have the electric-furnace process for the manufacture of phosphoric acid, which has been so successfully operated by Mr. Swan, at Anniston, Ala.

We have mentioned the possibility of calcium arsenate manufacture in our proposal, and I would say now that we have placed at the disposal of a company in Montgomery, Ala., some of our facilities which we were not using, and which saved them a large investment, and they are now proceeding to manufacture calcium arsenate, using our power.

At a meeting held in Washington several weeks ago there were assembled probably the leading minds of the country who have been doing research along the lines of synthetic ammonia and the supply of nitrogen in this country for the use of fertilizer. There were present at this meeting Doctor Bacon, Doctor Jones, Doctor Loyd, of the University of Alabama, who has made a detailed s udy of these matters, together with Doctor Cottrell, director of the Fixed

Nitrogen Research Laboratory; Doctor Curtis, of Yale University, who is investigating the supply of nitrogen for the Department of Commerce; also Doctor Larson, Doctor Lamb, Doctor Carr, Mr. Lampton, Mr. Ernst, and the speaker.

The purpose of the conference was to formulate a program looking toward research work and development of the fertilizer industry, with the idea of doing the greatest good to the farmer and to the country. It was the unanimous conclusion that a large reduction in the price of fertilizer to the farmer would come through and by educational campaigns, teaching the farmers the value of using concentrated fertilizer and the dilution of it, either at his farm or at some central point, through the medium and cooperation with other farmers or farmer associations.

The use of concentrated fertilizer in Europe has been practiced and is now practiced and, in the opinion of the meeting, there was no reason why the American farmer could not be educated to avail himself of this great saving. It was brought out clearly that the education would probably be slow at the start and that a very complete program of demonstration and instruction would have to be followed out.

It was the opinion of those present that the immediate starting of any plant of the size of 40,000 tons of fixed nitrogen per annum would result in a heavy expense and waste of the product. It was also their opinion that there should be set up a nitrate plant with a capacity of approximately 5,000 tons of fixed nitrogen per annum, and that the essential fertilizer output should be in part sulphate of ammonia and in part concentrated ammonium phosphate, with the probability that all of the output of nitrogen would be turned into ammonium phosphate.

In the presentation of the offer for power by these companies early in the week the question of section 124 of the national defense act was brought up.

The CHAIRMAN. It is now 12 o'clock, and we will take a recess until 2 o'clock p. m.

(Thereupon, the committee took a recess until 2 o'clock p. m.)

AFTER RECESS.

The committee reconvened pursuant to taking recess, Hon. Julius Kahn (chairman) presiding.

Mr. HULL. Mr. Chairman, before you proceed with the testimony, there is one matter that I would like the chairman to do. I think this has been before the committee, now, for——

The CHAIRMAN. Two years.

Mr. HULL. Very nigh on to two years. I think that in some ways it is the most important question that has come before this committee. Financially, I presume, it is the greatest question that has ever been decided by a legislative committee. There is a proposition before the committee of Henry Ford. I have heard a great many statements made as to what his proposition is. I myself am trying to keep my mind open on this matter and to be fair; I am trying, as far as I can, to keep it in that shape that I can arrive at a fair decision in regard to the matter. I think, however, that I am unable to decide some matters in my own mind, unless I am given the opportunity of asking Mr. Ford directly, where we will have a record, some questions. I think, as a member of this committee, that I am entitled to that courtesy.

Mr. WRIGHT. Mr. Chairman, do you not think that is a matter for the committee to take up in executive session?

The CHAIRMAN. Of course, this is all new to me. I imagine any member of the committee would have the right to question any bidder before the committee, and I imagine from what I have heard Mr. Hull just say that he wants to question one of the bidders. I do not know what it is. Have you finished your statement?

Mr. HULL. Well, there are just a few remarks there.

Mr. WRIGHT. Mr. Chairman, if you will pardon me, the point I make is these are all matters which should be handled in Executive session, as to what our procedure will be, whether we will call witnesses back—all those matters I suggest, most respectfully, are particularly for executive session, and not when you have a "full house."

Mr. HULL. The handling of the witnesses is handled right here and has been all the while. The witnesses have been here and we call them and ask for them. Of course, if there is any objection from any member of the committee, then I will admit that we would have to go into Executive session; but I hope that there is not a member on this committee who will raise the point of order or object to

my having the privilege of asking a bidder for this great property of the Government a fair question. If there is any member present who objects, I am willing to go into Executive session.

Mr. JAMES. I object.

Mr. SPEAKS. I intend to avoid objection, but it does seem to me you can arrive at some understanding without showing objection was made to what seems a reasonable question. Now, I feel much the same as Mr. Hull, that I would like to ask Mr. Ford some questions. Nevertheless, I can not see the object of injecting this request, which Mr. Hull is within his right in advancing, at this particular moment when we are in the midst of the regular proceeding here. It seems to me it is out of order, but I am not going to object. There is a proper time to do it, but it seems to me you are selecting a rather inopportune time to make the suggestion.

Mr. HULL. I have suggested this matter before and I want to say that my only idea in suggesting this was that there was a desire on the part of all parties to expedite this; and if Mr. Ford is to appear, then he should be invited. I will admit we can not force him to come, but I would like to try to get him to appear, and I think it is my privilege to ask him some questions.

FURTHER STATEMENT OF MR. E. A. YATES—Resumed.

Mr. YATES. Section 124 of the national defense act has been quoted at previous hearings of this committee to the effect that this section would not be complied with unless the projects at Muscle Shoals were devoted to the making of fertilizer in time of peace and explosives in time of war.

The offer I have just read on the fertilizer end, coupled with the offer on the power end. carries out completely the intent of this section in that not only is nitrate plant No. 2 maintained and a large amount of power allocated to fertilizer, but in our combined power and fertilizer offers we are under State and Federal regulation on the power end and our profits are limited on the fertilizer end.

The Ford offer, to my mind, does not comply with the intent of section 124, because while it agrees to make fertilizer, the tremendous value of the power used is not distributed to the people under regulation and is not passed on to the public either in the form of power or fertilizer, but these profits accrue to Mr. Ford.

I spoke day before yesterday of the tremendous advantage Mr. Ford would have for his industries, as compared with the cost of power to industrial users throughout the Southeast, and I repeat what I said then, that in 10 years more Mr. Ford will have the advantage in power costs to the extent of $15,000,000 annually over and above what the present users of industrial power are paying now in the Southeastern States.

I would repeat also what I said, that while Mr. Ford's payments to the Government and his cost of the power, as the years go on do not increase, the amount of primary power available to him is constantly increased and the value of the power is constantly increased by reason of the storage reservoirs which will be built on the upper Tennessee River and for which Mr. Ford will not pay his share toward the cost, being as he will not be under the Federal water power act.

Mr. MCKENZIE. Are you sure about that?

Mr. YATES. The Federal water power act, Mr. McKenzie, has a stipulation that any benefits accruing to developments below, by reason of developments above, a certain portion of the value or the value of the benefits accruing shall be determined by the Federal Power Commission.

Mr. MCKENZIE. You would not want to assert it as a positive statement that it is your judgment there would be no way in which the Federal Power Commission could assess a portion of this on Mr. Ford's company?

Mr. YATES. I do not see anything in the proposal, Mr. McKenzie, that in my mind would permit them to charge Mr. Ford for the value of the additional power created.

Mr. MCKENZIE. Of course, it is a question we have not gone into, but taking the reverse of that there is not anything in the proposal that says Mr. Ford shall not pay under conditions such as you have stated, as I recall the proposal.

Mr. YATES. Well, it would have to be written into the contract if you want to be sure that Mr. Ford was going to pay it. That is the way I looked at it. Because the provisions of the Federal water power act of June 10, 1920, on this point only apply to those who are expressly made subject to its provisions, this provision being:

"SEC. 9. * * *.

"(f) That whenever any licensee hereunder is directly benefited by the construction work of another licensee, a permittee, or of the United States of a storage reservoir or other headwater improvements, the commission shall require as a condition of the license that the licensee so benefited shall reimburse the owner of such reservoir or other improvements for such part of the annual charges for interest, maintenance, and depreciation thereon as the commission may deem equitable. The proportion of such charges to be paid by any licensee shall be determined by the commission.

"Whenever such reservoir or other improvement is constructed by the United States, the commission shall assess similar charges against any licensee directly benefited thereby, and any amount so assessed shall be paid into the Treasury of the United States, to be reserved and appropriated as a part of the special fund for headwater improvements as provided in section 17 hereof."

Mr. McKenzie. I do not care to take your time; I simply wanted to get your idea.

Mr. Yates. In my testimony several days ago I brought out a comparison of the power companies' offer, versus the Ford offer, on the basis of the power only, and that comparison showed that the power companies' payments on the basis of a hundred years would exceed Mr. Ford's payments by $80,000,000 to $90,000,000; that the power companies would save the Government, if the options were exercised by the Government, $25,000,000 to $35,000 of capital investment as compared with what the Ford offer would save.

Coming down to a comparison of the two offers on the fertilizer and keeping in mind this $80,000,000 to $90,000,000 of extra payments to the Government, and this saving of $25,000,000 to $30,000,000 of capital expense, I want to compare relatively the two offers on the fertilizer end.

First, we agree to make 50,000 tons annually of fixed nitrogen in the form of fertilizer, as compared with Mr. Ford agreeing to make 40,000 tons annually of fixed nitrogen in the form of fertilizer.

We state clearly that we will use one of the several processes which we know will produce cheap products. On Mr. Ford's side we understand he expects to operate plant No. 2. This is the cyanamid process and we know it results in a high cost for the manufacture of nitrogen. We feel that the cost of fixed nitrogen per pound as manufactured by the methods proposed to be used by us will be one-half of what the cost will be if manufactured in nitrate plant No. 2.

We agree to furnish 100,000 horsepower of energy for fertilizer at cost and 40,000 extra, making a total of 140,000 in all. Mr. Ford, as I understand it, sets up no specific amount on the cost of power for fertilizer. He states "using the most economical source of power available." The power could cost any amount desired up to the price at which some one else would furnish it.

Under our proposal the fixed-nitrogen capacity provided in case of war will be 90,000 tons, in that we maintain nitrate plant No. 2 with a capacity of 40,000 tons and we will have plants with a capacity of 50,000 tons in addition. Under Mr. Ford's proposal, the capacity to be maintained is 40,000 tons per year.

In the case of a breach of contract under the terms of these proposals, nitrate plant No. 1 and the water power can be recaptured on the power companies' basis. In case of the violation of the terms of the contract on the Ford end, the nitrate plants, the steam plant, the transmission line, and the steam plant on the Warrior River are deeded in fee to Mr. Ford and are not subject to recapture.

I have here a clipping from the Sylacauga News, of January 10, of Sylacauga, Ala. I read this because I want to bring out that the power company in its interest in the development of the State has an interest in the farmer.

"THE ALABAMA POLYTECHNIC INSTITUTE JOINS THE POWER COMPANIES IN PLAN TO ELECTRIFY FARMS.

"Alabama, January 7 (Special).—Definite arrangements have been completed between the Alabama Polytechnic Institute and the Alabama Power Co. whereby research work of a more comprehensive nature than ever before attempted will be begun to find practical means and methods of supplying southern farmers with hydroelectricity, according to the announcement made to-day by President Bride McDowell, sufficient funds having been appropriated by the Alabama Power Co. to cover the costs of experiments over a three-year period, during which research work on electrified agriculture will be done and practical studies will be made on farms located in different sections of Alabama. Discussion and consideration of this project have been in progress for some time

and, now that the agreement has been signed, actual work will begin immediately."

It is my understanding that this movement is going on all over the South.

Combining the two proposals on the power end and the fertilizer end, briefly the power companies' payments to the Government exceed Mr. Ford's payments to the Government in 100 years by $80,000,000 to $90,000,000.

By the exercise of options in the power companies' proposal, capital expenditure to the extent of $25,000,000 to $30,000,000 can be saved to the Government.

The power companies' proposal carries out fully section 124 of the national defense act and, by the limitation of the profit on fertilizer and regulation by States, insures the distribution of the value of these great projects both to the farmers and to the consumers of power; while under the Ford proposal the power end, without regulation, permits Mr. Ford to have an enormous advantage over other industrial users of power in the South.

We believe that the power companies' proposition on fertilizer is a definite, clean-cut, businesslike proposal.

It has the talent; it has the processes; it sets down specifically what it will do.

It is my understanding a large part of the time of this committee has been spent in trying to find out exactly what Mr. Ford means in his contract and I assume, from some of the questions and arguments that have been brought up while I have been here, that some members of the committee even now do not understand.

That is all I have to say, Mr. Chairman.

Mr. WRIGHT. Mr. Yates, would you please have inserted in the record a list of all the officers and directors of the nine companies that signed this letter to Mr. Merrill, the executive secretary of the Federal Power Commission.

Mr. YATES. Yes, sir.

Mr. WRIGHT. Also the capital stock of each of those companies, the outstanding stock, and the stock authorized; also the combined indebtedness of each of those companies.

Mr. YATES. I think that is all a matter of public record, Mr. Wright.

Mr. WRIGHT. I just want to get it in concise form here, so that we will have it before us.

Mr. YATES. Yes, sir.

Mr. WRIGHT. You will have no difficulty in furnishing that?

Mr. YATES. I think you can go to Moody's Manual and find all that.

Mr. WRIGHT. You can furnish it, can you not?

Mr. YATES. Oh, yes; we can collect it.

Mr. WRIGHT. Also how much of the stock of these companies is preferred stock and how much is common stock.

Mr. YATES. I think that will be set right up there; yes, sir.

Mr. WRIGHT. Of what company is Mr. Swan the president?

Mr. YATES. He is president of the Federal Phosphorus Co.

Mr. WRIGHT. Does the Alabama Power Co. own any stock in that company?

Mr. YATES. I do not know. We do not own any, Mr. Martin says.

Mr. WRIGHT. I suppose Mr. Swan will come on later?

Mr. YATES. Yes, sir; he is slated. Mr. Allen we would like to testify next, before Mr. Swan.

Mr. WRIGHT. Well, you will furnish this information, and would you include, also, the Southern Power Co. and the Georgia Railway & Power Co.?

Mr. YATES. We will get all the information we can; yes, sir.

Mr. GARRETT. Mr. Yates, all of these power companies are chartered for the purpose of the manufacturing, generation, and transmission of power? Is not that true?

Mr. YATES. Well, I presume so, yes. They are all in business.

Mr. GARRETT. What other powers have they in their charters, besides that?

Mr. YATES. I could not tell you, Mr. Garrett; I have never read the charters.

Mr. GARRETT. You represent the Alabama Power Co.?

Mr. YATES. Yes, sir.

Mr. GARRETT. What official position do you hold?

Mr. YATES. I am vice president and general manager.

Mr. GARRETT. You are vice president and general manager?

Mr. YATES. Yes, sir.

Mr. GARRETT. As vice president and general manager of the Alabama Power Co. have you been advised, under the charter of that company, that your company has the right to organize an entirely different company for the purpose of manufacturing fertilizers and guaranteeing the faithful performance of that newly organized company?

Mr. YATES. Well, I do not think it is the intent of the Alabama Power Co. to organize a fertilizer company, Mr. Garrett.

Mr. GARRETT. I understand at the outset of your statement you say we agree to organize a corporation for such purposes.

Mr. YATES. That is the power company. The lessee of the power at Muscle Shoals will form a fertilizer company. The lessee is a combination of the southern power companies.

Mr. GARRETT. Under the guaranty for the faithful performance of this fertilizer company, you say these companies that are signing this proposal will guarantee that?

Mr. YATES. The company that gets the lease on Muscle Shoals will guarantee it, and that will be their investment probably to the extent of $10,000,000. They will have their permit there; they will build the transmission lines; they will make connections; they have got to guarantee it.

Mr. GARRETT. These power companies will do that?

Mr. YATES. The power which secures the lease under this proposal, which is owned by the southeastern power companies.

Mr. GARRETT. What companies? We perhaps are talking about two different companies. I am talking about the Alabama Power Co. and its associates in this offer and the original offer to organize a fertilizer company with $5,000,000 of capital and to guarantee the faithful performance of that fertilizer company which will carry out this contract. Where do you get that authority?

Mr. YATES. The power company that makes the proposal on Muscle Shoals is a combined power company, owned by the power companies of the Southeast. That company will form a fertilizer company and will guarantee the carrying out of the contract.

NOTE.—Since my first statement to the committee I have discussed the matter with others interested and am authorized to say that at the option of the Government we would be willing to form one corporation with a capital of $15,000,000 in cash to take the lease of nitrate plant No. 1 and of the water-power projects under the terms of our proposals to be owned and controlled by Americans.

Mr. GARRETT. That is exactly what I wanted to know. Now, where do you get the power to do that, for this proposition you are making to Congress—the power to guarantee the performance of an independent corporation, independent of yourselves?

Mr. YATES. Well, we control the independent corporation. These companies that signed the letter control it. They are all in the minority, but they control it.

Mr. GARRETT. So you will have a subsidiary company that you organize. Are you willing for a clause to be written in your contract and in their contract that, if they do not faithfully carry out their contract to make fertilizer, your company that created it shall forfeit its rights to the power?

Mr. YATES. It is the intent of this proposal that we do that; it is the intent that the company that is created to carry out the power end will guarantee the fertilizer end.

Mr. GARRETT. And if the fertilizer end is not carried out, then you are willing to forfeit your rights under the power act as guarantor?

Mr. YATES. Yes, sir.

Mr. GARRETT. Suppose, after this has been done as you want to do it, the stockholders of these various power companies should decide that you had exceeded your authority under the charter and should proceed in the courts against these various companies and seek to set aside your guaranty of this subsidiary concern, and should be successful, what would be the status of the Federal Government in that event?

Mr. YATES. Well, Mr. Garrett, I am not a lawyer. I do not know all of the ramifications of this.

Mr. GARRETT. Then I want to get down to your fertilizer paragraph No. 4.

Mr. YATES. All right.

Mr. GARRETT. You say that your proposition is fixed and definite?

Mr. YATES. Yes, sir.

Mr. GARRETT. I want to ask you this question: Does your proposition provide that you shall make 50,000 tons of fixed nitrogen annually?

Mr. YATES. Yes, sir.

Mr. GARRETT. Now, let us see if it does. As I read your proposition, it says this: "The company shall construct and install on some of said lands the necessary plant and equipment to produce and it will produce annually fertilizers which contain 50,000 tons of fixed nitrogen as rapidly as there may be a com-

mercial demand therefor." Why do you put those words "as rapidly as there may be a commercial demand therefor" in this offer if you intend to make 50,000 tons annually and unconditionally?

Mr. YATES. Our proposal does not say we will make 50,000 tons initially at the start. We feel and our studies have convinced us absolutely that anyone starting to make fertilizer with a content of 50,000 tons immediately that it would be committing an economic crime; it is a waste. Now, this is what we say we will do, we will put in a plant sufficient to make fertilizers containing 5,000 tons of fixed nitrogen and we will create the market and we will attempt to teach the farmer and to cooperate with the farmer in the utilization of concentrated fertilizer whereby we know he will get a saving. Then as the demand comes we will expand.

Mr. GARRETT. Do you not appreciate the fact that a demand for cheap fertilizer is already created? It is here and everywhere, where it is used.

Mr. YATES. Oh, we appreciate the fact the demand for cheap fertilizer is here, but it has not been the custom in this country to furnish it in this form.

Mr. GARRETT. Then, under your contract, as you now construe it, if made in accordance with paragraph No. 4, you would only manufacture such amount of fertilizer as the commercial demand might require?

Mr. YATES. That is right.

Mr. GARRETT. Who would be the judge of the commercial demand?

Mr. YATES. We have a guaranty—there is a board fixed up here in this, a court, and they would be the judge.

Mr. GARRETT. Suppose that court should say the first year there is use for 50,000 tons of fixed nitrates, according to this paragraph of yours?

Mr. YATES. We know there would not be, Mr. Garrett; it is impossible.

Mr. GARRETT. Now, Mr. Ford's proposition, in paragraph 14, says: "The annual production of these fertilizers shall have a nitrogen content of at least 40,000 tons of fixed nitrogen, which is the present annual capacity of nitrate plant No. 2." And there are no limitation in regard to that, as to whether there is a commercial demand or not. We require him to make 40,000 tons of that annually, and the people will take care of that.

Mr. YATES. Mr. Garrett, I think there is a lot of uncertainty about that clause, section 14.

Mr. GARRETT. There is not any uncertainty about that language, is there, that far?

Mr. YATES. All right; but you read up ahead, "it will manufacture nitrogen and other commercial fertilizers, mixed or unmixed, and with or without filler, according to demand, at nitrate plant No. 2 or its equivalent." You have "according to the demand" right in there.

Mr. GARRETT. Yes.

Mr. YATES. Now, it is a question. They will manufacture nitrogen according to the demand; they will manufacture nitrogen and commercial fertilizers according to the demand; but it does not say in this that he is going to start right off the bat and make 40,000 tons of fixed nitrogen annually.

Mr. GARRETT. But we fix the annual production at the very beginning for 40,000 tons.

Mr. YATES. Well, it does not say so.

Mr. GARRETT. Well, I do not understand plain language if it does not.

Mr. YATES. Well, to my mind it does not. Of course, there is the other limitation in there of "causes beyond his control."

Mr. GARRETT. What is your construction of paragraph 10 of the proposition you submit, "The undersigned may in discharge of their obligation hereunder organize a corporation with the rights and capital provided for above, and cause it to contract with the United States to carry out the terms of this offer?"

Mr. YATES. That is the fertilizer company I was talking about.

Mr. GARRETT. You do not construe that to mean your obligation ends when you have organized that company?

Mr. YATES. No; rather the water power runs with this; the power is carried into this.

Mr. GARRETT. Mr. Yates, how do you know you can organize this $5,000,000 company?

Mr. YATES. Well, we know we can.

Mr. GARRETT. What assurance have you that you are going to get $5,000,000 paid-up capital stock to start with?

Mr. YATES. It does not say "paid-up capital stock," Mr. Garrett. We will get funds sufficient at the start. What we say we will put in immediately is a 5,000-ton plant for the fixation of nitrogen.

Mr. GARRETT. Under what State do you propose to organize this corporation?

Mr. YATES. I do not know.

Mr. GARRETT. That would make a considerable difference, would it not?

Mr. YATES. It might.

Mr. GARRETT. In some of the States you can organize this concern by just paying in 10 per cent of your capital stock.

Mr. YATES. Maybe we can; I do not know.

Mr. GARRETT. Are you willing for your offer to be so amended as to provide that this $5,000,000 shall be paid-up capital stock?

Mr. YATES. I do not see that there would be any use for it. We do not need $5,000,000 to start. Our guarantee would require us to go ahead on a certain course. We would need about half of the $5,000,000 for our first unit. We would have that money available as needed and we would be perfectly willing for it to be written in the contract that the entire amount shall be paid in.

Mr. GARRETT. A discharge of its duties to the Government, on a $5,000,000 corporation, you think, then, would be effected if you had half a million dollars to start off?

Mr. YATES. No, I did not say half a million dollars, Mr. Garrett; I said two and a half millions.

Mr. GARRETT. Two and a half million?

Mr. YATES. Yes, sir.

Mr. GARRETT. Fifty per cent of the capital stock paid-up?

Mr. YATES. It would build the first unit we are talking about. The balance would be on call; we would get the balance. There is no question about that.

Mr. GARRETT. How long have you been working on this fertilizer proposition, Mr. Yates?

Mr. YATES. I judge I have been working on it about 90 days.

Mr. GARRETT. Ninety days?

Mr. YATES. Ninety days.

Mr. Garrett. Oh, ninety days?

Mr. YATES. Yes, sir.

Mr. GARRETT. And, in that length of time, since the former hearings here, in which a number of experts testified that it was impossible for Mr. Ford to make fertilizer down there as cheap as he asserted he could, you have found a process or a method by which you can cut it half in two?

Mr. YATES. We are submitting our proposal. We are satisfied with the merits of it; absolutely assured of it. We have the gentlemen here to-day and we would like to have you listen to them.

Mr. GARRETT. Have you any information in the manufacture of fertilizer that the experts employed by Mr. Ford would not be likely to have?

Mr. YATES. I do not know.

Mr. GARRETT. There is no reason why you could make it any cheaper than he could, is there?

Mr. YATES. I suppose he could get processes.

Mr. GARRETT. That is all.

Mr. MCSWAIN. Mr. Yates, I believe you testified some days ago that it would cost your company very slightly more than it would cost Mr. Ford or his company to generate power at Muscle Shoals?

Mr. YATES. Based on our payments?

Mr. MCSWAIN. Yes.

Mr. YATES. You go back to the $90,000,000 to $100,000,000 or $80,000,000 to $90,000,000, over 100 years——

Mr. MCSWAIN. You said it would cost your company, you thought, slightly more than it would cost Mr. Ford?

Mr. YATES. That is, the group company, the combined company?

Mr. MCSWAIN. Yes. Your proposed composite company.

Mr. YATES. Yes, sir.

Mr. MCSWAIN. Slightly more than 2 mills per kilowatt?

Mr. YATES. That is about right.

Mr. MCSWAIN. Now you tell us to-day—you said Mr. Ford's cost would be about 1.9 mills per kilowatt?

Mr. YATES. That will be his maximum cost. It will go down as the years go on.

Mr. MCSWAIN. Now, you tell us to-day Mr. Ford, in your judgment, would have an advantage over power consumers in the Southeast of about $15,000,000 a year.

Mr. YATES. That is right. In 10 years he will still have more, after that.

Mr. McSwain. If that is so, then your company, selling power, would make, over and above the ordinary price, about $14,000,000 a year, would it not?

Mr. Yates. I wish we did, but we are under regulations; we do not.

Mr. McSwain. But the regulation prescribes the rate the consumers now pay?

Mr. Yates. Well?

Mr. McSwain. All right. Then you would not sell at a price more than you are now selling, would you?

Mr. Yates. That is subject to the working out of the situation.

Mr. McSwain. Well, if you got Muscle Shoals, you would make about $14,000,000 a year over and above what you would ordinarily expect to make?

Mr. Yates. Oh, no. We have the cost of distribution, we have the cost of transformation. The generating cost is a small part of the cost of getting power to the ultimate consumers. What I said was Mr. Ford, with his industries located at Muscle Shoals, would have the advantage in power cost to the extent of $15,000,000 over the industrial users of the Southeast.

Mr. Garrett. All right; that is all.

Mr. Hill of Alabama. You spoke this morning in regard to a calcium arsenate plant at Montgomery. I would like to know just a little about that plant.

Mr. Yates. Doctor Lloyd, of the University of Alabama, has been doing a lot of research work for us for the past year on fertilizer and he is also interested and we have given his time to the calcium arsenate. If the committee would like to hear the details of the calcium arsenate, we would be glad to get Doctor Lloyd here.

Mr. Quin. I think that that is an extraneous matter. I do not think that we ought to go into anything else except the contracts we have before us. Congress is waiting upon us.

Mr. Yates. Of course, Mr. Quin, we probably will make calcium arsenate at Muscle Shoals. It is a very valuable product and we will control——

Mr. Quin. I know that, but we can take that up in executive session. We all know what calcium arsenate is and there is no use going into an academic discussion about that and killing our time. Congress is going to adjourn here in June, we hope [laughter], and we have to get through; and, as one of the Representatives in the minority here, I am going to back them up and get this thing out of here.

Mr. McKenzie. Well, we will all turn on the steam. [Laughter.]

Mr. Hill of Alabama. Do you furnish the power to that plant in Montgomery?

Mr. Yates. Yes; we have turned over for a number of years our buildings and some of our equipment at a nominal rental. I think it is a dollar a year. We have turned them over to this company in order that they might get a start in the manufacture of calcium arsenate by a new method.

Mr. McKenzie. I just want to ask you one question. Of course the Ford proposition, with which you are familiar, says there will be a corporation formed with a capital of $10,000,000 paid in in cash. Now, I assume from your statement that you propose to organize a corporation and to issue $5,000,000 worth of capital stock, part of it paid up and, if necessary, to go on and sell some more stock until $5,000,000 is paid in. As I understand, the corporation is organized and then it issues its stocks and bonds and they are sold to purchasers throughout the country; the money is taken and then invested in certain properties. You have invested the money you received from the sale of your stocks and bonds in the power plants, transmission lines, street railways, and municipal lighting plants, etc. That is true, is it not?

Mr. Yates. Yes, sir.

Mr. McKenzie. I simply want to ask this question: What is the financial condition at the present time of those properties? Are they heavily mortgaged or do they represent at this time the capital investment or is there danger that some or all of those corporations might possibly, in the near future, go into the hands of receivers?

Mr. Yates. I think they are all in good condition. I know the Alabama Power Co. is.

Mr. McKenzie. Of course, you understand the point of my question?

Mr. Yates. Yes.

Mr. McKenzie. If we are looking for security from individuals, or corporations, or a guaranty, we naturally want to know what is in back of him. He might have a great deal of property and say "I own the building over there; I own that farm," and it would look as though it was very good security; but, if we went down to the records and found it was mortgaged for all it was worth, it would not represent much security. But I assume your corporations are in sound financial condition?

Mr. YATES. I do not think that there is any question about it.

Mr. GARRETT. Have not some of these nine companies, referred to back there in the hearings, been through the hands of a receiver a time or two?

Mr. YATES. They may have been; I do not know.

Mr. WURZBACH. I want to say, Mr. Yates, that I have been considerably impressed with these proposals; but the question that was put to you by Mr. Garrett and which you are not able to answer, you stating that you are not a lawyer, is, to my mind, a very serious matter that ought to be submitted to your attorneys; that is, as to whether or not these various companies, under their charters, have the power to guarantee any act on the part of this $5,000,000 corporation.

Mr. YATES. Would you like an answer written into the record on that?

Mr. WURZBACH. Yes.

Mr. QUIN. Do you think the lawyers on this committee can tell whether it is ultra vires, outside of their rights, or not?

Mr. WURZBACH. I think we ought to direct their attention to that question. I think it is a very serious question.

Mr. MCSWAIN. I assume the committee can answer that question.

Mr. FROTHINGHAM. Why not have an opinion on it.

Mr. MCSWAIN. Who would you have give an opinion on it?

Mr. WURZBACH. My question is directed to the legal rights in that regard.

Mr. QUIN. Everybody knows they have not a charter to make fertilizer, from the common knowledge of power plant charter rights, just like a bank. They can not go outside of their charter rights.

Mr. WURZBACH. I have my opinion on it, but I would like to get their opinion.

Mr. GARRETT. Could you put in that clause of your charter as to your powers to transact business?

Mr. YATES. We will give you a complete answer; yes, sir.

Mr. MCSWAIN. For all three of the companies?

Mr. GARRETT. Yes, all of the companies. I mean the powers of all of the companies under which they act.

Mr. YATES. Yes, sir. I would like now to have you hear Mr. Allen.

The CHAIRMAN. You may state your name and official position.

STATEMENT OF MR. E. M. ALLEN, PRESIDENT OF THE MATHIESON ALKALI WORKS.

Mr. ALLEN. My name is E. M. Allen; I am president of the Mathieson Alkali Works, a corporation incorporated under the laws of Virginia, with headquarters in New York, with works at Saltville, Va., where we manufacture heavy chemical products by the ammonia soda process, with electrolytic alkali works, at Niagara Falls, where we manufacture caustic soda, liquid chlorine, bleaching powder, and now synthetic ammonia.

I have been associated with the chemical industry, directly and indirectly, since leaving college in 1896. I have been associated with the industries that manufactured by-product coke-oven linings and knew details of the manufacture of ammonium sulphate from the by-product coke ovens.

At Niagara Falls, where our electrolytic works are located, due to cheap power we have there, we take salt in solution, put it through cells, and direct electricity through same; the sodium goes off on one side, this forms the caustic soda, and the chlorine gas that is used so much in the war goes off on the other side. We now manufacture about slightly over 50 tons of liquid chlorine a day at the Niagara Falls works.

Now, in this electrolytic process there is generated hydrogen. This hydrogen is generated at our plant to an extent of about 550,000 cubic feet a day. We naturally wanted to find some use for this hydrogen, and have developed and perfected the making of synthetic ammonia from this hydrogen, and we have been successful in making same. It is entirely an American development, it employs nothing but American machinery. There is no royalty paid for any Italian, German, or other process.

We can not thank the Government bureau here, that is under Doctor Cottrell, too much, because we utilize the nitrogen fixation laboratory's catalyst in the manufacture of our ammonia.

Ammonia up there is being manufactured at a cost under 7 cents per pound. The Muscle Shoals proposition, at the power cost that is set up, can manufacture ammonia there at 6 to 5 cents a pound. There is no doubt about it, because we are doing it, and we know what we are doing and there is no guesswork of

some Swedish inventor, some German inventor, or some Italian inventor; we know what we are doing.

Naturally, when the Muscle Shoals proposition came up, I was desirous to tie our American developed synthetic ammonia proposition into it. I looked around to see who I thought would have the best business proposition presented, as far as I could gather, and, through that investigation, I came in contact with Mr. Yates and Doctor Bacon. The fact of the matter is I had Doctor Bacon go to Italy for us, about two or three years ago, to investigate the Italian proposition, and we are now in a position to assure Mr. Yates that we can install our process. You have several other processes; you have the Italian process, and you have the Haber process, and they are assured of an American proposition, an American development, with all American machinery, in being able to set up and operate this plant without a doubt, as regards the manufacture of ammonia.

Now, as to the phosphoric acid manufacture, I can not say anything about. I do not know anything about that.

Mr. QUIN. Mr. Swan is the man on that?

Mr. ALLEN. Mr. Swan, I think, knows more about that end than any man I know of in the country. I do know about ammonia, I know what we are doing, and I will say this, that you have in this proposition of fertilizer the main thing set up, and that is the manufacture of synthetic ammonia. Then you can manufacture ammonium phosphate, the ammonium sulphate, or ammonium nitrate, and you can determine which would be the best method.

I would also like to say this, that I think that out here in Doctor Cottrell's laboratory you have got concentrated more knowledge of a practical kind than in any laboratory that I know of, and they have worked out what I consider and what my experts tell me is the best catalyst that has ever been developed in the world, and I just want to state these things to assure you, as far as the manufacture of the ammonia in this proposition is concerned, that you do not need to have any hesitancy about what can be put into effect in a very economical way, and I feel positive that with the fertilizer that can be manufactured through this and the combined processes, starting from this ammonia, that you can virtually cut the cost to the farmer for fertilizer about in half. There is no doubt about it.

I have promised the combined power companies that I will go on their board, will work with them and throw our process into their proposition, if they are successful in securing the Muscle Shoals property. I naturally looked them up very carefully, because, if a man has some box cars to sell, he would naturally look for the nearest railroad. But here is a power proposition down there with all these transmission lines from the Southwest toward New Orleans, away over into Virginia, and I think that they have the foundation set for the utilization of it and, then, they are willing to back this fertilizer proposition. I have looked into their securities, naturally, and I have also looked into their financial backing, and I am perfectly satisfied with same.

Mr. MCKENZIE. Just one question: You have no desire to discuss the business features of any of these propositions, but I simply wish to ask you, in case Mr. Ford should be granted this lease, and the property is sold to him as provided under his proposal, you would have no objection to giving to Mr. Ford's company the benefit of your knowledge in case he should desire to employ you as an assistant, would you?

Mr. ALLEN. It would all depend on what kind of a proposition Mr. Ford would make to me.

Mr. MCKENZIE. That is what I mean. You are interested in the development of this process which you say is of such great use to the farmers of the country?

Mr. ALLEN. Yes.

Mr. MCKENZIE. And, as far as you are personally concerned, you are not interested in the business end of this proposition, one way or the other?

Mr. ALLEN. Well, I think I would be interested in the business end of it.

Mr. MCKENZIE. That is, you think you would take stock in the allied group of power companies?

Mr. ALLEN. Yes; I think I would feel inclined to recommend to our people that they go ahead and cooperate with this fertilizing proposition.

Mr. SPEAKS. Regardless of who had the fertilizing proposition?

Mr. ALLEN. No; I can not say that.

Mr. MCKENZIE. You are satisfied, in your mind, however, that the time has come in this country when fertilizer can be manufactured at a price which can be sold to the farmer?

Mr. ALLEN. At almost half of what it is being sold to him now.

Mr. FROTHINGHAM. You mean it can be manufactured cheaper that way if you get the water power; that they both go together?

Mr. ALLEN. Oh, that is an essential part of it—cheap power.

Mr. FROTHINGHAM. Both to Mr. Ford and anybody else?

Mr. ALLEN. Yes, sir.

Mr. QUIN. I did not catch your name.

Mr. ALLEN. Allen.

Mr. QUIN. What is your occupation, Mr. Allen?

Mr. ALLEN. I am president of the Mathieson Alkali Works, manufacturers of heavy chemicals.

Mr. QUIN. Are you a chemical engineer?

Mr. ALLEN. I graduated as a mechanical engineer. I employ a good many chemical engineers.

Mr. QUIN. I am very much impressed with you, because you, I think, bear out the testimony here that I believed before, that they could make this fertilizer down there at half and at less than half of what it is selling for now. Did you read Mr. Ford's hearings?

Mr. ALLEN. No.

Mr. QUIN. And the Alabama Power Co.'s hearing?

Mr. ALLEN. No; I read the digest of it.

Mr. QUIN. In that, Mr. Allen, I will call your attention to the fact that there are a lot of gentlemen who brought in, some of them, great big long titles—colonels, doctors of chemistry, and all that—and they testified here that without question Ford was actually such a big fool he would need a guardian; he would go broke down there if he tried to make fertilizer. You think they are mistaken about that, do you not?

Mr. ALLEN. I refuse to answer. [Laughter.]

Mr. QUIN. Why, nearly all of these witnesses here, the Alabama Power Co., showed that he was a fool and would go broke. Now, you say they can make it, and I believe you are correct about it, that it can be made for half of what it is selling for now, and you know how, because you have been in that business all of these years.

Mr. ALLEN. Yes; we are doing it.

Mr. QUIN. You are doing it?

Mr. ALLEN. Yes.

Mr. QUIN. And you know this man Swan is doing it, as far as phosphoric acid is concerned?

Mr. ALLEN. Yes, sir.

Mr. QUIN. There are two of you who know how to make fertilizer?

Mr. ALLEN. And that makes a combination of the mixed fertilizer.

Mr. QUIN. And all that was just a smoke screen two years ago? There has not been any revolution in chemistry since that time, has there?

Mr. ALLEN. I will say this; that it has been within two years that we are doing what we are doing now, Mr. Quin.

Mr. QUIN. Without question, Ford was about two years ahead of you?

Mr. ALLEN. No; he was taking the basis of what the Government had done in plant No. 2. Now, if he gets plant No. 2 and we run this synthetic ammonia plant here, he can not make fertilizer and give it to the farmer in competition with this modern, last word, of the synthetic ammonia process. He could not compete, because his costs would be virtually twice those by this process.

Mr. QUIN. Oh, you know that man has a big lot of money and he can hire the smartest men in the United States, if he wants to.

Mr. ALLEN. Well, he has done some peculiar things.

Mr. QUIN. I do not think we need be afraid of his losing any money out there, because he has a good thing.

Mr. ALLEN. Well, he lost a little bit on the peace ship, did he not?

Mr. QUIN. Oh, we all lost that; we lost a lot in sending young fellows over there to kill the Huns. We have to put this thing up in a way to benefit all of the people of the country, and especially the farmers, and some of them that talked about it in the northwest have not got enough—they can not even pay the interest on their debts, and the cotton farmers are nearly as bad in my country, because of the boll weevil and rain, and we know what the farmers need. That is one reason why I am vitally interested, and all of our committee is.

Mr. ALLEN. We are all interested, because the farm produces the basis of prosperity of the country.

Mr. QUIN. All business depends on it.

Mr. ALLEN. Absolutely.

Mr. QUIN. Of course, as far as the current part is concerned, that is vital and important; we all recognize that.

Mr. ALLEN. Absolutely.

Mr. QUIN. A man is foolish, if he is any business man at all and has any vision, that does not recognize the importance of transmitting current at a cheap rate.

Mr. ALLEN. Absolutely. Now, in connection with this situation, it is our intention to put in these plants around the country. That means we are going to develop our process throughout the country, of making ammonia, and there will be a saturation point reached as to synthetic ammonia, in form of anhydrous ammonia, and, when that is reached, then it will be necessary to go in the fertilizer manufacture, and that is where you will have need for the services of a commercial fertilizer man. I have employed a man who has had a great deal of experience in that line, that came with our company the first of January for that very purpose, because he knows the commercial end of the fertilizer business, and he knows the plans and methods of distributing the same, and he is not connected with any fertilizer company, but is now connected with the Mathieson Co. Neither am I connected with any fertilizer corporation whatsoever, or any interest allied to any fertilizer corporation.

Mr. MCSWAIN. Mr. Allen, I believe you stated Doctor Cottrell leads all others on investigations looking to the making of synthetic ammonia?

Mr. ALLEN. I would say that the laboratory out there deserves the greatest credit in the world.

Mr. MCSWAIN. And what he knows and that laboratory belong to the people of the United States and are not protected by any patents or controlled by any monoply; they are the property of the people of the United States?

Mr. ALLEN. Absolutely.

Mr. MCSWAIN. So, if the Government of the United States wanted to it could send Doctor Cottrell out there to assist Mr. Ford in his work, so that Mr. Ford would have the best brains in the country, would he not?

Mr. ALLEN. You could do that; yes. But they have not built a complete works up here and operated it, as yet, and there is a great deal of experience that is necessary.

Mr. MCSWAIN. You know that the Ford contract proposes to reserve to the United States Government the right to send and keep an inspector or officer there at any and all times, does it not?

Mr. ALLEN. Yes; I think so. I have not read that in it; but this proposition of the Alabama Power Co. goes that a great deal better.

Mr. MCSWAIN. In what respect?

Mr. ALLEN. They offer $1,000,000.

Mr. MCSWAIN. For whom to handle?

Mr. ALLEN. The Government.

Mr. MCSWAIN. But they do not say anywhere that we can keep Doctor Cottrell or anybody else there looking after them and watching them, do they?

Mr. ALLEN. They can answer that; I do not know as to that proposition.

Mr. MCSWAIN. I can say they don't, because I looked that up.

Mr. ALLEN. I think you will find they can; that your Secretary of Agriculture has that power, and he is over Doctor Cottrell.

Mr. MCKENZIE. We are very much obliged to you.

Mr. ALLEN. I thank you, gentlemen.

STATEMENT OF MR. THEODORE SWAN, BIRMINGHAM, ALA., PRESIDENT OF THE FEDERAL PHOSPHORUS CO. AND THE FEDERAL FERTILIZER CO.

Mr. SWAN. My name is Theodore Swan, of Birmingham, Ala. I am president of the Federal Phosphorous Co. and the Federal Fertilizer Co.

I appeared before this committee on February 17, 1922, to tell you of our developments on phosphoric acid at Anniston, Ala. Since that date, we have carried our work to a more successful commercial conclusion. We are to-day using 20,000 horsepower, continuously, in the smelting of phospate rock. We have smelted a total of over 80,000 tons of phosphate rock. The entire development has been looking toward the fertilizer proposition. Of course, up to the present time, the majority of our product has gone into the highest-priced market, which has helped to pay the cost of this development. Our average experimental work has been about $150,000 a year.

We are selling what is known as food grade phosphoric acid products. It is not necessary to take the committee's time up with that, except to say it yields

a higher price because purity is required and that whatever we can do with the pure phosphoric acid, naturally, we can do with the fertilizer grade.

But we have developed a furnace through many different designs, until to-day it has reached a point when we know what the cost will be of making liquid phosphoric acid. Now, take Mr. Allen's proposition, or any synthetic ammonium process, or even the by-product coke oven ammonia: The method, until we brought the phosphoric acid process to its present state of development, was to fix the ammonia with sulphuric acid to make sulphate of ammonia, containing 25 per cent ammonia plant food that the farmer desires.

Now, to arrive at the cost to the farmer, you must take the delivered cost. There are various elements that go to make it up. We can take liquid phosphoric acid, as it comes from our furnace, containing about 55 per cent of phosphoric acid, and use that to fix either gaseous or liquid ammonia into ammonium phosphate containing 60 per cent phosphoric acid and 15 per cent ammonia, in a concentrated form ready to be used by the farmer when diluted to the proportions required for his particular soil and crop. Therein lies the greatest advantage in the utilization of the nitrogen that you propose to have manufactured at Muscle Shoals, because you use one plant food to fix another plant food, and thereby cut down the freight. That is the very important part of the entire proposition.

Now, we have worked that out; we are making it; we have been furnishing it now for more than three years, the food grade of ammonium phosphate, which is identical with what the fertilizer grade would be, with the exception we would use a crude ammonia and a crude phosphoric acid instead of the present highly purified grade.

Our company has made a commercial success out of its work. We have been in Alabama for more than 10 years and are naturally interested in the Muscle Shoals proposition, as I said a moment ago, and our work has been developed along the line of actually perfecting something and doing it, so that when the proper time came for utilization of the power at Muscle Shoals we would have our process ready. I said, in my previous testimony, our process was available for use at Muscle Shoals for the production of fertilizer; that all we wanted was some power for commercial purposes. That is why we joined with the associated power companies, and I am going to take a financial interest in the company, which they propose to organize, because I believe in it.

The question of freight rates is one that has not been appreciated, I do not think, and certainly has not been brought out in the testimony. During 1920, the States of Kentucky, Tennessee, Alabama, Louisiana, Mississippi, and Florida used 1,097,723 tons of fertilizer. The state of Georgia alone used 978,090 tons, practically as much as the other six States. The State of North Carolina used 1,221,796 tons, and South Carolina 1,253,890 tons.

Some months ago we started to work to find out how far from Muscle Shoals we could ship fertilizer of the grade now offered to the farmer, what is commonly known as mixed goods, and then how far we could ship concentrated fertilizer. Naturally, while Muscle Shoals is in the South, I think the farmer from every section of the country is entitled to receive the benefit from cheaper fertilizer that may be manufactured there because it belongs to the people of all the United States. And, strange as it may seem, the points farthest removed from the present points of manufacture of fertilizer are the ones that would enjoy the greatest benefit from a concentrated fertilizer; because, taking the case of ammonium phosphate, containing 25 per cent plant food; that is, on the average about five times the strength of the ordinary mixed fertilizer. You gentlemen from the farming sections know that there are many different formulas for mixing fertilizers, but 3–9–3 is about the weighted average, making a total of 15 per cent plant food. In the comparisons in the other hearings, you used 2–8–2 as the basis to work against. That is a total of 12 per cent. Therefore, this is more than six times the amount of plant food in a ton of our concentrated fertilizer.

Now, you may be interested to know how you are going to cut that cost to the farmer. The present price of sulphate of ammonia is approximately $60 a ton wholesale. The price varies, depending on the location. A ton of sulphate of ammonia will contain 500 pounds of ammonia. That is 12 cents a pound. According to Mr. Allen, they could make it for half of that, 6 cents a pound. But you have started you saving already by using the liquid phosphoric acid to fix ammonia, in a concentrated form, and you do not have to pay high-priced labor for sacking and the handling of it, and you do not pay the railroad freight on a lot of dilute material. As has been said, if a man is a dirt farmer, he surely would

have enough dirt upon his place to dilute concentrated fertilizer down to the form he wants to use it in.

The proposition of the associated power companies plus the fertilizer proposal makes a well-rounded proposition.

Speaking of the development from the time that I was here about two years ago, there has been a very great development taken place in our operation from a technical standpoint. If I had a photograph of our furnace two years ago as compared with our furnace to-day, you would not recognize them as being akin to each other. We still believe that we are just on the fringe of the work that we can do; we have not scratched the surface. We have now definitely proven a lot of things that we considered theories before. One of my competitors has a patent in which he wrote in there "at a temperature not obtainable in a fuel-fired furnace," in his phosphoric acid process. I might say the process has never been commercially worked. We come along and after nearly four years of experimentation we found that such a high temperature was not necessary. Therefore, we took out a patent and we say, "at a temperature easily obtainable in a fuel-fired furnace." We are now using a fuel-fired furnace with the method we have devised and we are spending money to the point where we can smelt phosphate rock and produce liquid phosphoric acid, in a fuel-fired furnace that uses as a fuel either coal or fuel oil, which means that we can locate our furnace in the phosphate rock field and thereby save the freight on shipping from the mines to Muscle Shoals.

There is another question about the total tonnage of fertilizer that could be made at Muscle Shoals. If you will turn to the Government records of the total tons of rock mined in Tennessee, as compared with the total tons of rock mined in Florida, you will find the total production from Tennessee is very small as compared with that of Florida; and when you exceed a reasonable tonnage, and that depends to an extent on where you are going to sell it, you would perhaps have to ship rock in from Florida. There are certain economic features from which you can not get away. My business has been conducted on the basis of trying to make some money to carry this development on, and we have made money. Therefore, we have had to pay attention to the commercial side of it.

While it is not my place, perhaps, to answer some of the questions that have been brought up, I would just like to ask you gentlemen if you would build anything very much larger than is needed at the time? The fertilizer offer provides for 5,000 tons of fixed nitrogen to start on and going on up to 50,000 tons as it is commercially needed. It is a common-sense way of doing anything, if you deal with it from the business standpoint. Hence, if you sold a farmer at cost, plus 8 per cent, he would naturally pay the fixed charge on that investment that was idle, or to carry it over from a dull season, and you do not want to load him down with this extra cost if you are really desirous of having him get cheap fertilizer.

Another question was brought up about the demand already being here. Yes, the demand is already here. I might say we have three salesmen out now trying to sell fertilizer. I use the word "trying" advisedly. Some farmers do not want to use concentrated fertilizer. We furnish concentrated fertilizer or mixed goods; we sell the mixed goods for just about the same price as the other manufacturer. I am referring now to the Federal Fertilizer Co. We are experimenting and trying to make it pay, just as any business does, and the farm bureaus are doing some splendid work along that line, and we sold to the farm bureau of Calhoun County, where our plant is located at Anniston, a supply of 28 per cent phosphate, which is the highest concentration they have ever undertaken to use. Our work is going on; it is encouraging. I merely bring that point up as encouraging, rather than discouraging from the viewpoint of the ultimate possible use of concentrated fertilizer, because, as all of you have important work is being done by the farm bureaus, the county agents, the Department of Agriculture, etc., to develop the use of concentrated fertilizer. But it won't be a revolution overnight in the method of utilizing concentrated fertilizer.

Roughly speaking, the average freight rates from Muscle Shoals, taken to some six or eight of the leading points in each State, are as follows: Alabama, $3.30 a ton; Florida, $6.55 a ton; Georgia, $3.23; Kentucky, $3.52 a ton; Louisiana, $5.32 a ton; Mississippi, $2.90 a ton; North Carolina, $6.54; South Carolina, $6.30; and Tennessee, $2.25. Now, I have grouped them by States rather than taking a great many individual points. Thus you can see from the freight standpoint that there is a distance too far away where you could not ship ordinary mixed goods and compete with the present prices, which would give them a very good profit. But, with the concentrated fertilizer, your range of how far you can ship is greatly extended. I think that is all.

Mr. HULL. You say that you charge 8 per cent. That is, of course, plus the cost. How many times will you turn over in the year?

Mr. SWAN. Mr. Hull, in view of the large investment that is necessary, I think it is very doubtful if you would turn over more than one time per year.

Mr. HULL. Once?

Mr. SWAN. Yes, sir.

Mr. WURZBACH. In terms of fixed nitrates; that is, for fertilizer purposes, what do you think would be the probable demand within 10 years?

Mr. SWAN. That is a very difficult question to answer without stating too many "if" clauses, but I will try to answer it. First we have the by-product ammonia that is going to be sold before any synthetic ammonia or Chilean nitrates is sold here, because it is a by-product. We have coming, perhaps in the reasonably near future, the carbonization of coal, and that will make available a large supply of ammonia. Now, the average consumption of fertilizer in the United States for the past 10 years has been 6,358,300 tons. Perhaps if we were using twice that quantity in 10 years we would not be using too much for the economical production of crops. But, to what extent will the by-product coke ovens increase; what effect will the carbonization of coal have?

Mr. WURZBACH. I was not asking about the supply; I was asking about the probable demand for nitrates for fertilizer.

Mr. SWAN. I was leading up to that. The demand should double approximately in 10 years. I think that Professor Whitney, of the Bureau of Soils, testified that the country could use 12,000,000 tons of fertilizer.

Mr. WURZBACH. Twelve million tons?

Mr. SWAN. Yes. I am speaking of mixed fertilizer, and in referring to a ton of fertilizer do not confuse a ton of ordinary mixed goods with a ton of concentrated.

Mr. WURZBACH. I mean in tons of fixed nitrates.

Mr. SWAN. Yes.

Mr. WURZBACH. Now, these proposals provide for the manufacture of 40,000 tons, do they not?

Mr. SWAN. Yes; that is, 40,000 tons of contained nitrogen.

Mr. WURZBACH. And an outside limit of 90,000 tons. That would take care of all of the reasonable demands of agriculture, would it not?

Mr. SWAN. With the other supply of nitrogen also being increased—blood, tankage, cottonseed meal, etc.

Mr. WURZBACH. The price of those nitrates would probably be affected, would they not, by the cheap manufactured nitrates at Muscle Shoals?

Mr. SWAN. They naturally would be affected; but when you cut the price of synthetic ammonia the by-product coke oven will cut down the price to where it will be sold first. That would be the logical thing to happen, because it is a by-product with them, and they won't throw it away.

Mr. QUIN. What is the strength of the Chilean nitrates that are imported into this country for use?

Mr. SWAN. You are referring to the ordinary nitrate of soda?

Mr. QUIN. Yes.

Mr. SWAN. It is about 19 per cent.

Mr. QUIN. In a ton of that how much sodium nitrate is there?

Mr. ALLEN. Eighteen and one-half per cent.

Mr. SWAN. You compare the two by taking the per cent of ammonia in each, sulphate of ammonia 25, and the ammonium phosphate there will be 15 per cent.

Mr. QUIN. That is, in the Chilean nitrates?

Mr. SWAN. No; I am speaking of ammonium phosphate. Chilean nitrates is 18½ per cent.

Mr. QUIN. What is the strength of this proposed to be manufactured down here at Muscle Shoals?

Mr. SWAN. Ammonium phosphate would be 60 per cent phosphoric acid; 15 per cent ammonium, making a total of 75 per cent.

Mr. QUIN. What would be the other 25 per cent?

Mr. SWAN. Well, that would be your inert material in there. The way you would manufacture that is to take liquid phosphoric acid, or gaseous ammonia or liquid ammonia and mix the two together in a saturator, and by the heat of reaction the water is driven off, and it comes out as a salt and looks not unlike the table salt, except it is darker in color.

Mr. QUIN. They have 25 per cent of that in fertilizer?

Mr. SWAN. Yes, sir; 25 per cent of ammonia in sulphate of ammonia and 15 per cent of ammonia in ammonium phosphate.

Mr. McSwain. How does the price of producing phosphate by your furnace method compare with the ordinary chemical process cost?

Mr. Swan. The comparison should be made on the delivered product to the farmer.

Mr. McSwain. No; I am talking about f. o. b. the cars at the factory.

Mr. Swan. Well, f. o. b. cars at the factory; it depends on the location whether one can be made cheaper than the other. It depends upon the price of power, the price of the rock. Now, you take the delivered price at a distance, the electric has an advantage. There are other places it does not have the advantage. And, in these proposed processes there may be places in which you would use the sulphuric acid process. I do not claim for a minute that the electric will supplement immediately the sulphuric acid in all places, but it will merely apply to the places where it can be produced the cheapest.

Mr. McSwain. If, however, power could be had at two mills per kilowatt hour, for the production of phosphate from phosphate rock, by the electric-furnace process, do you not think it would be very much cheaper than the chemical process?

Mr. Swan. Not in every case; no. Take Florida, sulphur can be delivered from Louisiana to Florida very cheap. You could not make ordinary acid phosphate, I am referring to by the electric-furnace process as cheap as you could by the sulphuric-acid process. But if you would take it in the form of concentraded phosphoric acid, which you eliminate from your question because of the freight, then it widens the range at which you can ship, and you would dilute the phosphoric acid made by chemical process, generally called acid phosphate, which is a mixture of ground phosphate rock with sulphuric acid, which product contains 16 per cent phosphoric acid. If it is not available to fix your liquid ammonia, then you would have to buy a ton of sulphuric acid for each ton of ammonia phosphate. So the one question interlocks with the other. The ultimate cost is what you are interested in, to the farmer.

Mr. McSwain. Yes.

Mr. James. When you were here before, you said we ought to be using about 10,000,000 tons a year, did you not?

Mr. Swan. I think that was the figure; and I raised that figure to 12,000,000 tons now in 10 years.

Mr. McKenzie. We are very much obliged to you, Mr. Swan.

STATEMENT OF MR. WILLIAM CALLAN, MATHIESON ALKALI WORKS.

Mr. Callan. My name is William Callan. At present I am connected with the Mathieson Alkali Works in the commercial development of their synthetic ammonia process.

Most of my life, however, has been spent in the fertilizer industry, as a manufacturer first, in a plant of a company of which I was vice president. Later that plant was sold to the International Agricultural Corporation, and I was with them for a number of years in various capacities, and, later, with H. J. Baker & Bro., of New York, who are the largest handlers of fertilizer materials, perhaps, in the world. In the United States they represent the German potash syndicate and Antony Gibbs & Co., of London, who are Chilean nitrate producers.

I am acquainted with most of the fertilizer people of the United States, and I have been active in all departments of the fertilizer business. In recent years there has been a tendency on the part of consumers away from the mixed fertilizers. That departure from the use of mixed fertilizers has been aided by the Agricultural Department and, later, by the various State organizations and the county agent and the farm bureaus. It has been a matter of education. The concentrated fertilizer business was new. Very often the farmer did not know what his materials contained; he did not know very much as to what was necessary to make his plants grow. His education has been broadened, and he now knows pretty clearly what they do contain and why, and why they should contain it, and the possession of that knowledge has led them to look toward a cheaper source of supply for their own needs, and that has led to the organization of these various farm bureaus and buying organizations throughout the South, and also throughout the North, which have been buying the raw materials and which have been going to the more concentrated materials all the time.

I think that these organizations and farm bureaus will look with great favor on the possibility of securing fertilizer containing 75 per cent plant food, which

would enable them to produce their mixed fertilizer with greater ease and lower cost.

Mr. Swan said most of the things that I intended to say. I do not think that I can say very much except to repeat that, in my best opinion, having been in the fertilizer business all these years, that the farmers can be placed in possession of fertilizer at about half the cost they are now paying; but I think that the Lord helps those who help themselves; that the farmer must be put in the position through educational work and know how to handle these materials properly. These farm organizations, I think, should be increased in number in every county. I believe that every county should have one. Every small community should have a small subdivision, and they should set up small mixing machines, to be operated with a small electric motor, and in that way I think that the entire South and the North also would be able to get fertilizer for at least one-half of the price they are paying.

That mixing unit could be developed by one of the large concerns and perhaps sold at cost to the farm organizations.

I do not think that I have anything further.

Mr. McKenzie. Perhaps some of the members would like to ask you a question. We are very much obliged to you.

Is there any other gentleman who desires to be heard on this?

STATEMENT OF DR. R F. BACON, CHEMICAL ENGINEER, NEW YORK CITY.

Doctor Bacon. I am connected in this matter with the Alabama Power Co. and other power companies. I might say that I have devoted many years to the study of nitrogen fixation and other fertilizer problems. I wish to state that when this matter was taken up with me by the power companies their instructions were to get a process which would give the farmer fertilizer at the cheapest possible cost, without regard to any possible profit to them. In my statement I desire to cover only one or two points that I think are apparently not clear in the minds of the committee. Mr. Ford has already made a fertilizer proposal to the committee. It is hard to tell exactly what he proposes to do. He probably intends to operate nitrate plant No. 2. I want to state that the power companies concerned in this proposal could do the same thing. They could operate nitrate plant No. 2 and by doing so they could make quite a lot of money for themselves, selling at 8 per cent profit, but they would not give the farmer fertilizer as cheaply as they can give him under the proposal they are now making. The actual cost of fixing nitrogen in plant No. 2 is about 12 cents down to perhaps 10 cents per pound of actual nitrogen fixed. The actual cost of fixing nitrogen by the process we propose to use is about 6 cents down to as low as 5 cents per pound of actual nitrogen fixed. In considering the profit which the company can make by selling its products at cost plus a fixed percentage, the matter of the turnover is very important. I speak of this because I believe that Mr. Hull has already asked some questions about this matter of the turnover. If a company would operate nitrate plant No. 2 which is already set up for operation, the amount of capital required for 40,000 tons of fixed nitrogen of product, would be rather small—perhaps $5,000,000. In the process we propose to operate it would require for 40,000 tons of fixed nitrogen product about $25,000,000 capital. If we earned 8 per cent per year on $25,000,000 it is evident that the earning on a $5,000,000 capital with the same amount of product would 40 per cent, but the farmer would not get his fertilizer as cheaply on the proposal to operate nitrate plant No. 2 with the capital investment of $5,000,000 as he would on our proposal involving a capital investment of $25,000,000. In other words, we have chosen the process which gives the farmer fertilizer at the cheapest possible price although chosing such process does not give anything like the profit on the capital invested that Mr. Ford's fertilizer proposal apparently gives.

I would like to make a statement on one other phase of the subject. The reason we have said we will start with one unit of 5,000 tons is this, we have studied the whole situation, we have consulted with fertilizer experts and with Government experts on this subject and all the advice is that that amount of tonnage is as much as one could expect the farmer to take in the first year; simply because the farmer has not been educated with respect to the use of a concentrated fertilizer. If you are going to save the farmer any considerable amount of money on his fertilizer, he must buy a concentrated fertilizer. The Government experiment stations and farmers associations are now rapidly educat-

ing the farmer to buy concentrated fertilizers. If he will do this, we can, under our proposal, deliver to him on the farm plant food for half the cost or less than half of what he is now paying for the same amount of plant food in mixed fertilizers.

We have calculated that we can do this, not only for the farmer of the South but also for the farmers of a very large section of the whole country.

Mr. McKenzie. Do you desire to ask a question, Mr. Hull?

Mr. Hull. You are proposing to use plant No. 1. Is that true?

Doctor Bacon. We propose to remodel plant No. 1. Plant No. 1 can not be used as it stands. It is not in condition to operate. I do not think we will actually use more than a little of what is in there. That plant never did function successfully and it is out of date now. We propose to install a modified Haber process which I prefer to call The American Process, although it is based on work originally done in Germany. It is an American engineering project and we think we have made improvements beyond anything Germany has ever done, thanks pretty much to governmental study in the Fixed Nitrogen Laboratory.

Mr. Hull. Your idea is that we can manufacture cheaper in that way than in using plant No. 2?

Doctor Bacon. There is no question we can go there and by using the synthetic process can fix nitrogen cheaper at Muscle Shoals than any one can by using the cyanamid plant—i. e., plant No. 2. I might say that even at the date when plant No. 2 was completed (I happen to know about this because in the war I was colonel, Chief Technical Division, C. W. S. A. E. F.) it was recognized at that time that the cyanamid process as a process of nitrogen fixation was probably obsolete, but, of course, in the emergency it was the thing to do, to install something the pattern of which was ready at hand.

Mr. Hull. Plant No. 2 would function to-day, would it not?

Doctor Bacon. I have no doubt it would. I think it would function and make nitrogen, at 12 to 10 cents per pound of nitrogen fixed.

Mr. Hull. That is about twice the cost you think the other would be?

Doctor Bacon. Just about twice; yes.

Mr. Garrett. I would like to ask this: Is the process that you expect to use, in the various companies that you would be associated with at this place, not available to anybody else that might want to make fertilizer at that point?

Doctor Bacon. That undoubtedly could be made available, I imagine.

Mr. Garrett. And anybody could run it in a business way, exercise the same amount of business ability that you people could, and make it just as cheap as you could make it?

Doctor Bacon. I think so; yes, sir. If they could get together the proper engineering organization. It must be understood, however, that there are very few engineers in this country who understand thoroughly the operation of a synthetic ammonia plant. I believe that all of these engineers are tied up with various companies, so that anyone trying to install and run a synthetic ammonia plant would have great difficulty in getting together a proper organization to do it. Running a synthetic ammonia plant is a complicated chemical process, quite different from running an automobile factory. There are in this country probably a thousand engineers sufficiently expert and capable to install and operate an automobile factory to one able to put in and successfully run a synthetic ammonia plant.

Mr. Garrett. But your conclusion is that this company that is to be organized, known as the fertilizer end of this power proposition, could not make fertilizer there at a profit. Is that what you stated?

Doctor Bacon. A very small profit, but not enough of a profit to discuss in a commercial sense at all.

Mr. Garrett. Then the power companies who propose to organize this fertilizer company and guarantee the faithful performance of its obligations, as laid down in the proposition, would have to be taken care of by the power company?

Doctor Bacon. I did not understand the question.

Mr. Garrett. If the fertilizer company that is to be organized under this proposition offered here by the power company is to be operated, and can not make a profit, and its operations are to be guaranteed by the power company, then, as a matter of course, the power companies will have to take care at all times of this fertilizer company, whether it makes money or does not make money.

Doctor Bacon. Perhaps you misunderstood me. The actual profit that can be made, as we figure it on the capital invested, is slightly under 8 per cent, because there is not quite one turnover in a year. Nobody could go out to-day

and get people to invest money in a proposition that promises only 8 per cent or a little less. However, suppose we had been operating for a few years. If we had operating history behind us of 10 years where we had actually earned let us say 7 per cent, then people would invest money and I would say it would be an actual commercially profitable operation. I think I can further answer that question in this way, that there is not any question—I think it is admitted by everyone—that the power companies could not afford to go into the fertilizer business if they did not expect to make some money out of power sold for purposes other than fertilizer use. I think that is a straight business proposition that is admitted by all. On the other hand, the fertilizer proposition, as we have set it before you, will in time be considered to be a conservative investment paying around 7 per cent on the actual capital invested; so that in that sense, the power companies in time would not have to take care of the fertilizer company although I understand that the power companies have guaranteed it up to 50 years.

Mr. GARRETT. How much finished fertilizer does this amount of fixed nitrogen make?

Doctor BACON. I presume when you say finished you mean mixed fertilizer.

Mr. GARRETT. I mean a mixed fertilizer.

Doctor BACON. There are several kinds of fertilizer, but we will take 2–8–2. One ton of ammonia would make 50 tons, so far as the ammonia part is concerned, of 2–8–2 fertilizer.

Mr. GARRETT. And you would run that per cent through the number of tons you want to make, and get your total number of mixed fertilizer?

Doctor BACON. I think I can explain that in this way: We say that in the first unit we will make 5,000 tons of nitrogen; that is that is equal to 6,000 tons of actual ammonia. If we make that up as ammonium phosphate, it is equal to 40,000 tons of ammonium phosphate, which is a concentrated fertilizer, and which is enough to make 300,000 tons of 2–8–2 fertilizer. That is what we propose to make the first year, the nitrogenous and phosphorous plant food constitutents of 300,000 tons of 2–8–2 fertilizer.

Mr. GARRETT. You have only considered this proposition from the fertilizer end of it, have you not?

Doctor BACON. Not from the power end.

Mr. GARRETT. Not from the power end?

Doctor BACON. No; I have not considered it from the power end except as to the price.

Mr. GARRETT. You have not considered that at all—the Muscle Shoals proposition as a whole, as set forth in the Ford proposition, to take care of that plant, the nitrate plant No. 2, the conditions of that during the term of the lease, and also to manufacture a fixed amount of fertilizer per annum from the beginning of the lease. You have considered none of those questions, as a whole?

Doctor BACON. Yes, I have.

Mr. GARRETT. Have you made an estimate of what it would cost the lessee of that property, the property known as Plant No. 2?

Mr. WURZBACH. No. 2 is the cyanamid process?

Mr. GARRETT. To keep No. 1 in stand-by condition for, say, 100 years.

Doctor BACON. It would probably cost between $60,000 and $100,000 a year. I do not know how much that figures up for 100 years.

Mr. GARRETT. To keep it in a stand-by condition?

Doctor BACON. That is what it would cost, $60,000 to $100,000 a year. Mr Ford does not propose to do that.

Mr. GARRETT. I mean No. 2. I believe it is No. 2.

Doctor BACON. Mr. Ford proposes to use No. 2. He proposes he will take No. 1, if you will sell it, and he will scrap it.

Mr. GARRETT. No. 2 is the nitrate plant that I have referred to, and keep that in a stand-by condition for 100 years—was that the one you referred to?

Doctor BACON. $100,000 a year, it would cost. We propose the same thing, I understand.

Mr. WURZBACH. Doctor Bacon, how much water power do you estimate it would require to produce 5,000 tons of nitrogen at plant No. 1?

Doctor BACON. Around 10,000 horsepower.

Mr. WURZBACH. Would it be your idea that the remaining part of the power that was apportioned for fertilizer manufacture would be credited to the fertilizer company on the cost of production of fertilizer?

Doctor BACON. I can not answer that question. I do not know.

Mr. WURZBACH. You understand it?

Doctor BACON. I understand what you mean. The provision, I think, is covered in this way: There is a provision in the offer that the cost may be determined through a committee appointed by the Secretary of Agriculture. The reason it is difficult to answer is this: I suppose, if the power companies are selling their power, they would include this surplus of 90,000 you are talking about and sell it at a higher price than the actual cost which they agreed to sell it for fertilizer purposes.

Mr. WURZBACH. It ought to be credited to the fertilizer.

Doctor BACON. On the other hand, suppose they were not selling all the power they had, then the question would come up whether the power they were selling was part of the fertilizer power or part of the power they were allowed to sell. I do not see how I can answer it.

Mr. WURZBACH. If there was a demand for all the power that was being developed at Dam No. 2, say, and the fertilizer company was only using 10,000 horsepower and the water-power corporation proposed to be organized were using or selling all of that portion of the water power, that ought to be credited to the fertilizer company, do you not think?

Doctor BACON. I think that is covered in the proposal.

Mr. WURZBACH. Do you not think that that ought to be made clear in this proposal?

Doctor BACON. I have no authority to speak further on that subject. I am an engineer in this matter and have no authority to speak for the people I am associated with; but there is this provision set up in this proposal, which I think covers the case. There is a provision for an impartial board to determine what the cost is, and you can think of many details which might come up which would be impossible to cover in a general proposal. I think that any details not covered in this general proposal would rightly come up before this impartial board, who are given authority to determine proper costs.

Mr. WURZBACH. It might be contended, if that were not made very clear, that the provision in the contract, or in the proposal that they are only to manufacture 5,000 tons of nitrates at the beginning of the contract, that that meant that the balance of power would be used by the power companies instead of the fertilizer companies. At least, there is room for different constructions as the proposal now reads. You agree to that, do you not?

Doctor BACON. Yes, sir.

Mr. MCKENZIE. We are very much obliged to you, Doctor Bacon.

STATEMENT OF DR. LOUIS C. JONES, INDUSTRIAL CHEMIST, NEW YORK CITY.

Doctor JONES. Gentlemen, I have lived in nitrogen all my life. There is practically 100 feet of liquid nitrogen over every bit of the land surface of the earth, if it were liquefied; but that is immaterial.

I have been with the companies, a group of companies, which were the first in the United States to make by-product ammonia. I built the first ammonium-sulphate plant which was built in the United States, at Ensley, Ala.

I was in Berlin in 1903, when Sir William Crookes made the announcement that the world was destined to starvation from nitrogen lack, which our friend has spoken of. I think that the crown prince was in the gallery, all of which is immaterial, except to show you that I have a background in this nitrogen business.

I have investigated in Europe the Sersek, the Hauser, the Claude, and the Haber processes. I have been to Italy to see the Casale process. In 1913, before the war, I made a strenuous effort to get permission to use the Haber process in the United States, and they arrogantly said that that process could not be used anywhere except in Germany. I do not know what they had in their minds.

I wish to state that I have been connected with the largest manufacturers of alkali in the United States, which consumes large quantities of ammonia, and during the war we made tremendous quantities of explosives—T. N. T. and picric acid—out of ammonia, which had been burned to nitric acid.

I was vice president and director of manufacture in the National Aniline Co., which also made a great many products out of synthetic ammonia. In my last job before leaving the corporation as general manager I had to construct and put into operation the largest synthetic ammonia plant built so far outside of Germany. There is one being built in England, there are two or three smaller ones in France and in Italy, and Mr. Allen has one operating very success-

fully at Niagara Falls, but I am speaking of these things merely to show you that I have had experience in ammonia, synthetic ammonia, and by-product ammonia, and I had charge of organizations which have worked for 10 years in trying to develop the best method of fixing ammonia.

I also at one time was a coal miner, and had charge of a group of coal mines, and the coal lands were selected from the point of view of giving the best yields of by-product ammonia.

I have been a member of a foreign committee, which met in Brussels, which investigated all the developments of nitrogen fixation, and after all of this, not that I am speaking at all boastfully, because I am accused of being too modest, I say there is no difficulty in the United States in making fixed nitrogen at Muscle Shoals by a process which would produce ammonia at the prices which our friends have suggested, 5 to 6 cents perhaps, half what the present market is now, and I believe the layout which we have entered into, and which I have helped to perfect and lay out, is the best that can be developed and the most practical, because it starts with knowledge of how to do it in three or four directions, and it sets aside a group of men, following along the lines in research with the scientific bureaus here in the United States, to take advantage of any developments, any change, and changes are liable to come rapidly in an unseasoned industry.

Now, in addition to that, when this thing first came up to me, I had a group of engineers answer this question: What is the best and cheapest method of procedure to adopt for making the cheapest fertilizer product at Muscle Shoals, without any bias? We first said what would be the cost of fixing nitrogen in No. 2 plant, the one I understand Mr. Ford proposes to operate. We also attempted to see what it would cost in No. 2 plant by making modifications, by selecting cyanamide as it is, or converting it into, perhaps, urea, or ammonium sulphate. Then we said: How about No. 1 plant, what will it cost to change that, and after it is changed, how much will it cost to produce nitrogen there, and then when it comes to that process, we have investigated as to whether it is cheaper to use a process of electrolytic hydrogen, or from water gas, and then we said: What will it cost to build a plant, a brand new plant, along the lines of Mr. Allen's, which has been developed here in Washington by the Fixed Nitrogen Research Bureau, and what would the ammonia cost, etc. After going over this whole proposition, and letting some assistant of mine give me the figures, there was no doubt whatever but what with the cheap power at Muscle Shoals the synthetic ammonia plant would produce fixed nitrogen at a cost below that of any other process which we now know anywhere in the world. Therefore I am whole-heartedly back of this proposition.

I can tell you a great many details which as a committee you already know, and it would weary you to hear, but if we attempt to operate No. 2 plant, and produce cyanamide, here is a question that has not been brought out: there are the difficulties of the injurious effect of cyanamide on soils, on the land, and then you will have to go further and make it into some other form of stuff which brings the cost to practically what it is now, and I do not see how, no matter how absolutely sincerely an attempt to carry out Mr. Ford's offer is, that it would make any cheaper fertilizer than is available now, except from the viewpoint that Mr. Ford could distribute to greater advantage than perhaps any fertilizer companies, but he does not propose to concentrate his fertilizer, and would not get the full benefit of distribution which we propose.

There are a tremendous number of problems at Muscle Shoals, and we believe to start out to build a 40,000 ton plant would be unbusinesslike, uneconomic, and there would be a difficulty in selling it, and it would not do the Government or the farmer any good. You would have to charge present prices, perhaps greater prices, because you would have to store and carry and finance.

Mr. McKenzie. As it is true that we have that plant now, we need not build one. You said to build one.

Doctor Jones. I did not mean build. I meant to put into operation. I did not mean to build at all.

There are a tremendous number of propositions at Muscle Shoals in regard to utilization of power, which can be worked out in cooperation with this research organization. By using off-peak power it brings the cost higher than operating on primary power, still higher on secondary. I have looked into that a great many times.

In connection with the layout of our proposal, I think the capital cost on the average, and depending on the particular system you put in, is approximately 30 per cent of the total cost. Now, if we make electrolytic hydrogen there is oxygen to throw away. There are other industries that can be established there which might

furnish by-product hydrogen. There is a very great problem in determining just what is the very best method of utilizing the equipment at Muscle Shoals. There is a tremendous amount of money there. The oxidation plants for converting ammonia into nitric acid. In fact, in cooperation with the Government, I took out the patents which were given to the Government, and installed in No. 1 plant for oxidizing ammonia. This, which has not been emphasized very much, I think is a tremendous advantage in that, in cooperation with the fixed nitrogen laboratories, you have a going process down there, and as rapidly as a new process or improvement or utilization of by-products for off-peak power is found by the best group of men in the United States, it will be put in and result to the benefit of the consumers of the product.

Now, I have before me a great many figures and details which I do not think it is necessary to put in. In the room is Doctor Curtis, who investigated cost statistics of nitrogen figures all over the world that were available to the public, but you have already heard many times statistics and figures. I will be very glad to answer any question that the committee may desire to ask me.

Mr. Yates suggested that I ought to say that I am the only man that can do that; that is, put this construction program through on a practical basis. He did not say it in those words, and that is not true, but I think Mr. Ford would have a great deal of difficulty in getting together an organization to do what we propose to do, although there are very few things that a large amount of money will not do. I hate to put any emphasis on that particular side of the thing, but as a matter of fact, we do know how to start to-morrow to design, build, and lay out a plant which will contain no uncertain elements, and will produce ammonia very closely to our estimated costs, and many of the gentlemen here will agree to that. However, I have a word to say in connection with this which I want to say from a personal point of view. I do not want any members of this committee to assume that I am going to utilize unfairly any information I have ever obtained in connection with any previous group of corporations with which I have been associated, yet we have information entirely outside of that which gives us an opportunity to build what I consider the best proposition for the particular locality at Muscle Shoals.

Mr. McKenzie. I think the members of the committee appreciate the fact that you have spent your life in a study of these very difficult scientific questions, and it is very interesting to hear you discuss them and hear other gentlemen discuss them, but the problem confronting this committee is not a scientific problem. It is not a question of the best method of producing fertilizer, or whether there will be improvements in the various methods now known, but it is simply a question of disposing of a tract or a site of governmental property to some one who will take it over and do these things. We are not so much interested in how it is done. It is a question of doing it, and if you have anything to say that would throw any light on the various propositions, and point out to us wherein the Ford proposition is unwise, and it would be unfortunate for the Government to enter into this contract with Mr. Ford, and that your contract promises more to the people of the country and the Government, we will be glad to hear that, and I am sure the committee does not care to go into the question of the scientific problems along these various lines.

Doctor Jones. I do not wish to go into the scientific part of it any further.

Mr. McKenzie. I will say this, if you have a statement, and will put that in the record, if you want that included with your remarks, we will be very glad to have you do so.

Doctor Jones. I have nothing more to present. I do not want to present this from a scientific viewpoint.

I have been an executive officer of a large group of companies, and I know what it means to develop processes and make them come through commercially without costing more than they are worth, and for that particular reason I think it is unwise to attempt to build a plant, to produce a tremendous tonnage of stuff, without knowing how you are going to do it, particularly one that has a lot of uncertain elements in it. You can not afford to experiment on a 40,000-ton plant, and I think that is the greatest danger in connection with the Ford proposition, remembering that the consumer has got to pay for all of that.

Now, I am backing the layout which I have put down because I think that it is logical, and I think ultimately it will give you what you want—what the farmer wants now, and at the end of 5 or 10 years, better than any other I know of.

Mr. McKenzie. Of course, you understand that the members of this committee and the Members of Congress are in no way responsible for the errors and mistakes that were made by the men who were trying to do things for the Government during the period of the war, and we have found that a great many errors and mistakes were made, and perhaps this is one of them; but it is up to

us now to make the best disposition of that tract, notwithstanding the mistakes that were made.

Doctor JONES. We made similar mistakes with the same point of view, trying to do the same thing, and I think we were justified.

Mr. MCKENZIE. What we are trying to guard against now is not having the Government make another mistake.

Doctor JONES. We are trying to cooperate with you to that end.

Mr. MCKENZIE. Yes, sir; I understand.

Mr. HULL. Do you propose to use plant No. 1?

Doctor JONES. Yes, sir.

Mr. HULL. The Ford proposition is that we should use plant No. 2?

Doctor JONES. Yes, sir.

Mr. HULL. What, in your opinion, would be the difference in the cost of fertilizer made by the two different plants?

Doctor JONES. Well, we have figured that No. 2 plant would produce nitrogen fertilizer at a cost—ammonia content—of 12 cents, say, perhaps less, or perhaps 10 cents, and in the case of the other plant, we think that we can make it for 6, or perhaps 5.

Mr. HULL. Just about double it?

Doctor JONES. Yes; we think so.

Mr. HULL. To use No. 2?

Doctor JONES. Yes.

Mr. HULL. That is all I care to ask.

Mr. JAMES. There is no doubt in your mind that you can cut the price of fertilizer in half?

Doctor JONES. There is no doubt in my mind but what you can do that, considering the product delivered to the farmer, in the case of freight savings and the distribution cost.

Mr. JAMES. I mean by that that you mean you will cut the price of fertilizer in half?

Doctor JONES. We can produce the nitrogen portion of the feritlizer at something like half the present cost. Now, we have not gone into the sale cost, distribution cost, or very much of that. Mr. Swann went into the cost of freight, all of which works toward our proposition of making a concentrated material. We would certainly not contemplate what is a big item now, the cost to the consumer and the Government of credits, storage, and all that sort of thing. However, that would be controlled by the board who would supervise the distribution of the product we make.

Mr. WURZBACH. I will say that I am of an open mind on these proposals, and I want to get some information for my own benefit if not for the benefit of the rest of the committee.

Are you financially interested in some other company engaged in this same business?

Doctor JONES. No sir.

Mr. WURZBACH. There would not be any divided allegiance, would there, in your connection with this company?

Doctor JONES. No, sir.

Mr. WAINWRIGHT. I suppose, Mr. Chairman, that the consideration as to the process, or group, or syndicate, or organization, which will offer the best prospect of carrying out the object we have in mind is really the fundamental and relevant consideration, and I wanted to ask you, Doctor Jones, whether we have manufactured nitrates in this country for fertilizer purposes in a commercial way. I mean, manufactured this practically and supplied it for agricultural purposes.

Doctor Jones. Through the by-product operation they make it in large quantities.

Mr. WAINWRIGHT. Where is that?

Doctor JONES. At all by-product coke ovens, for instance the ovens at Gary; Mr. Ford has a small plant at River Rouge, and there are plants all over the country. I could name 50 or 100. There are many in Birmingham and Anniston making sulphate of ammonia for fertilizer use almost entirely.

Mr. WAINWRIGHT. Where is it being most successfully manufactured abroad?

Doctor JONES. Well, the by-product industry in Germany is principally located in the Ruhr district, in Essen; they are making large quantities of by-product ammonia, and in addition they have two synthetic plants along the lines that we are discussing. The combination of the two produce practically 1,000 tons of ammonia a day, and the greatest amount of synthetic ammonia made outside of that in all the world is 15

or 18 tons, or perhaps 20 tons, made in the United States; but I do not know how much Mr. Allen is getting, but I should say 25 tons, compared with 1,000 tons a day made in Germany; and it is inconceivable that an industry which has now been installed and in operation since 1913 will not develop here in the United States.

Mr. WAINWRIGHT. What method do you propose to use?

Doctor JONES. We propose to use the synthetic ammonia process, which consists of deriving hydrogen from water, nitrogen from the air, practically the old process—compressing the two, and utilizing the high-pressure catalytic method, which is well known. The laboratories can tell you more about catalytic materials. This acts as a catalyst, and it so tickles the gases under pressure that the two combine, hydrogen and nitrogen, forming ammonia, which liquefies, or is washed out and delivered, and there is nothing going on except the compressors forcing this mixture of gas into the catalyst chamber, and it combines and disappears.

Mr. WAINWRIGHT. I do not know that I understand that.

Doctor JONES. It is so simple it is difficult to understand, really.

Mr. WAINWRIGHT. My only question was whether the exact method you have in mind was being practically applied anywhere in the world to-day.

Doctor JONES. In many places; Mr. Allen has recently told you about what he is doing at Niagara Falls. He is doing exactly that. In many places in Europe they are doing that. At Syracuse and the bigger plants in Germany I have mentioned, at Oppau and Merseburg they are doing that and a little more. They are going through a more difficult operation, in making hydrogen by means of passing steam over coke to make water gas, and they follow the system further.

Mr. WAINWRIGHT. You think that we can hope, if you get this plant and put it in operation, the method you are proposing, that you can supply nitrates to the farmers in this country just as cheaply as they are supplied in Germany, taking into account the power of exchange?

Doctor JONES. Taking into account the natural differences, we can do exactly as well as they.

Mr. WAINWRIGHT. Can you do it as cheaply?

Doctor JONES. As cheaply; yes. The hydrogen cost is the main thing in producing these things. You can produce it from cheap power from water to advantage. If you can not have cheap power you have to do it from coke, and you must have cheap fuel, and I would not hesitate to finance a plant which the fixed nitrogen laboratories alone can build, because they know how, and I know how it can be put on a large commercial scale, and many others do.

Mr. WURZBACH. Doctor Jones, you stated, I think, that the cost of construction of nitrates at Muscle Shoals with the water power there available would be about 6 cents a pound?

Doctor JONES. That would be the cost of ammonia, or less.

Mr. WURZBACH. Arriving at that result of 6 cents, how much did you figure as the cost of water power?

Doctor JONES. I figured water power at three figures, from $10, $15, and $20 per horsepower year. I hesitate a little because I did not want to confuse you.

To produce that ammonium and convert it into ammonium sulphate, which adds a considerable cost, say, $10 a ton or $9 a ton for sulphuric acid. If you take ammonium first, we can produce it for less than 6 cents.

Mr. WURZBACH. Let us put it at 6 cents, because it is all relevant now.

Doctor JONES. The difference in power between ten and twenty dollars—the difference in cost is only about 1 cent a pound.

Mr. WURZBACH. You figure that the difference between ten and twenty would be one out of six.

Doctor JONES. That is what I mean, that the difference would be one out of six, a little more than one, according to my figures here.

Mr. WURZBACH. How did you arrive at the cost of the water power to the fertilizer company?

Doctor JONES. I have not fixed that. I figured at $10, and then I figured at $20 per horsepower year, and I know the amount of power required to produce a ton of ammonia, on the 5,000-ton basis, would be ten or eleven thousand horsepower. I have not used any definite figure, but I can. I have given you the $10 and $20 costs, and I did not know exactly how the actual cost of power down there will be ultimately fixed.

Mr. WURZBACH. What I was trying to get at was the relative cheapness of power at Muscle Shoals as compared with the power at Niagara Falls, for instance.

Doctor JONES. That was discussed this morning and I made an effort to buy power at Niagara not long ago, and I think they were asking around twenty-some

dollars for horsepower, for continuous power, and I am very conservative in that. The representatives of the carbide company said they had considerable power on old contracts, I am sure, around 15. This Muscle Shoals power at $15 is very attractive power cost.

Mr. WURZBACH. You do not know what kind of a tentative arrangement has been made between the water power company to be organized and the fertilizer company that is to be organized?

Doctor JONES. I think that has not been settled. You mean as to the cost?

Mr. WURZBACH. Yes.

Doctor JONES. As to the price of power?

Mr. WURZBACH. Yes; what the one company will charge the other company for the power.

Doctor JONES. No; I do not know.

Mr. WURZBACH. Is it not almost necessary to know that in order to determine the cost of fertilizer? Are you taking it at the very lowest?

Doctor JONES. I have been assured under no case would it exceed $20, and this project is sound on that basis.

Mr. WURZBACH. On that basis.

Doctor JONES. It will not give cheap fertilizer to the extent that $10 power would. I have been assured that the power was to be at cost, but I do not know what the cost will amount to.

Mr. MCSWAIN. You do not know who will fix the price?

Doctor JONES. I suppose some unbiased board will supervise that.

Mr. MARTIN. We have some more witnesses, but I do not think that they are available here this afternoon, gentl en.

Mr. MCKENZIE. Now, gentlemen, there is another offer pending before us. I think we ought to take a few minutes on it before we go any further, and Mr. Levering has a proposal, and he wants a few minutes to make a statement to the committee. If you will do that, Mr. Levering, we will be through with you.

STATEMENT OF MR. J. H. LEVERING, CIVIL ENGINEER, LOS ANGELES, CALIF.

Mr. LEVERING. I live in Los Angeles. I am a civil engineer. I have been at Muscle Shoals twice for different parties interested in preparing a bid for a proposition for the plant. I tentatively, with several others, prepared a plan here, and it has not been introduced yet, but I think it will be in a few days, and, at Mr. McKenzie's suggestion, I wish to speak about it in a general way.

I think you have all noticed the enormous profits that power is going to make other people who get that plant. They are talking about $15,000,000 or $20,000,000 a year. That profit should be diverted from the plant lessees, whether they be automobile manufacturers or power distributers, and it should go to the development of Muscle Shoals as a national proposition. That is the point I am trying to make, and in this bill that is coming we have followed as closely as we could the national-bank law that requires a deposit with the Government to take care of the securities. We do not believe that the Government should go into business of any kind, but any utility where people are interested, the Government should control. It is that theory that we have been working on, and I now want to say a few words as to the cost of nitrates.

I have taken just the figures of plant No. 2 as they were given to me by the Ordnance Department of the Army, and I will tell you that these people can do just about as they say. I do not believe there is any question about it. They can cut the price in two, but the profit that would go to the automobile business or to the power business and manufacture nitrates at plant No. 2, and if sold would pay for 50,000 tons a year it could be sold for $5 a ton. It would be cheaper under the new process.

Mr. MCKENZIE. Your bill has that in view?

Mr. LEVERING. Yes, sir; there is one bill for the power people, one for the automobile men, and ours is for the Government, and we hope we will have some support.

Mr. MCKENZIE. There is a gentleman here representing the carbide company who would like to have a few minutes. We will allot him about 10 minutes.

STATEMENT OF FREDERICK M. BECKET, TECHNICAL EXECUTIVE, UNION CARBIDE CO., AND VICE PRESIDENT OF SEVERAL ALLIED COMPANIES, NEW YORK CITY.

Mr. BECKET. I am technical executive of the Union Carbide Co. and vice president of several of the allied companies.

I should like to take a very few minutes of your time and make a few remarks concerning the use of urea as a fertilizer, to clear up one or two points, particularly as urea has an important bearing on the status of nitrate plant No. 2.

This country imports and utilizes for agricultural purposes approximately 500,000 tons of Chile nitrate, expressed in round figures. This country produces annually a little less than 600,000 tons of ammonium sulphate—I think the most recent actual figure is 590,000 tons. This country utilizes in agriculture from 300,000 to 325,000 tons of ammonium sulphate. The difference between 325,000 and 590,000 tons of ammonium sulphate is being exported. What is the explanation of this situation? I believe the true answer is that Chile nitrate is a fertilizer much more desired by the farmer than is ammonium sulphate.

Chile nitrate is still fixing the price of nitrogenous fertilizers. The farmer prefers it at a price equal to ammonium sulphate, or even at a little higher price. I mention this to emphasize the importance of urea.

Urea is a fertilizer of organic type which will replace Chile nitrate in a way that ammonium sulphate will not replace it. It is not acid nor alkaline; and its economical preparation has been for many years the goal of inventors as the ideal fertilizer.

Ura has the highest nitrogen content of all the fertilizers that have been considered. The whole question of concentrated fertilizer and the savings in transportation is emphatically expressed in urea, as a nitrogenous fertilizer. It has a 42 to 43 per cent nitrogen content. Chile nitrate contains 15.6 per cent—at least it is purchased on that basis. Ammonium sulphate has a nitrogen content between 20 and 21 per cent. Therefore urea has over double the nitrogen content of ammonium sulphate.

We have paid a great deal of attention to the question of urea in recent years, and I think that the latest developments are not well known in this country.

In Sweden there has been a plant in operation for about the past three years which several members of our staff have investigated very thoroughly.

Caro, of Germany, probably the man who has had more experience than anyone else in the world in the fixation of nitrogen, has recently become interested in this urea process. Within the past week we have received word that a pilot plant has been constructed and is now ready to operate. Abroad there seems to be tremendous activity on this whole subject of the manufacture of urea.

Now let me say a word about the manufacture of cyanamide in nitrate plant No. 2. It is well recognized that so far as the cheap fixation of nitrogen is concerned calcium cyanamide is the cheapest route. The conversion of cyanamide to ammonium sulphate is expensive. However, the total cost of the conversion of cyanamide to urea is less than the sulphuric acid necessary to convert ammonia to ammonium sulphate.

I am anxious to impress the point that urea is a real competitor of Chile nitrate. We are exporting large quantities of ammonium sulphate, and as you have been told to-day the selling price of ammonium sulphate produced from by-product coke ovens can be cut in half if necessary.

Mr. MCKENZIE. Do you know of any provision in the Ford offer or the offer made by these various companies that would prevent them from manufacturing urea at Muscle Shoals?

Mr. BECKET. I do not know anything that would prevent them from manufacturing urea if they had an appropriate and economical process. Our own Government has been working on the problem of the production of urea from an entirely different line of attack.

Mr. MCKENZIE. That is one of the things we would expect these associated companies, or Mr. Ford, if he got it, to progress along those lines.

Mr. BECKET. We have the rights for the urea process which as Mr. Morrison told you this morning we are willing to turn over at cost. We are also in the same position with regard to the fertilizer known as phosphazote. This is the trade name of a very concentrated fertilizer. Recent statistics show that approximately 15,000 tons of phosphazote were produced last year. This fertilizer has met a welcome response in Europe. If the United States Government wishes to include phosphoric acid in the Muscle Shoals development, it will not be necessary to confine Muscle Shoals to nitrogenous fertilizers. We are in this way in a position to take care of both urea and phosphoric acid.

Mr. McKenzie. Is that a patent, the process?

Mr. Becket. There is a patent application for phosphazote in this country. For the straight urea process there are five issued United States patents, and the process is also protected in many other countries. In Germany the Swedish inventor has recently won his case on appeal. So far as the patents in this country are concerned, if we commute the royalties and spread them over a period of ten years the royalty charge per ton of urea is approximately 40 cents on the quantity we have suggested manufacturing.

Mr. Wainwright. Can you give us the same figures for Germany that you gave us for the United States with regard to the consumption and the need, and the way that consumption is distributed between the various kinds of manufactures?

Mr. Becket. I can not give you these figures exactly. I can give you only a general impression. Germany was formerly a very large importer of Chile nitrate. Not being able to obtain this commodity during the war Germany was compelled to adopt methods for the fixation of nitrogen. She adopted the Haber method of making ammonia and the production of ammonium sulphate therefrom. A mixture of ammonium nitrate and ammonium sulphate was later produced which resulted in the great catastrophe of which you are all aware. This signifies in Germany the need for fertilizers other than ammonium sulphate.

Mr. Wainwright. Are you able to tell us to-day about the portion of Chile nitrate and the portion of manufactured nitrates that are used in Germany?

Mr. Becket. I am sorry that I am not familiar with the recent figures showing the importations of Chile nitrate by Germany. During the war no Chile nitrate was obtainable in Germany. Two or three years ago the demand was so urgent that arrangements were made to enable Germany to obtain considerable quantities of Chile nitrate.

Mr. Wainwright. The German experience is very vital and relevant to what we are doing here.

Mr. Becket. In the fixation of nitrogen, you mean?

Mr. Wainwright. Yes, sir.

Mr. Becket. Yes, sir.

Mr. Wainwright. How about Sweden and Switzerland? Can you give us any figures as to those countries?

Mr. Becket. Switzerland is not a large user. They are producers of fertilizer.

Mr. Wainwright. Sweden; does the same apply to that country?

Mr. Becket. Sweden is not a very large user of fertilizer either, and Norway is not. Relatively speaking, Germany is a tremendous consumer. I believe the present capacity is approximately 500,000 tons of fixed nitrogen per annum.

Mr. Wainwright. How about England? How large an amount of what is used in England comes from Chile, and from manufacturing sources?

Mr. Becket. England has been quite an importer of Chile nitrate. She learned during the war to increase her use of ammonium sulphate, and she has for a time tried to get along on ammonium sulphate as far as possible, but she has since gone back to larger supplies of Chile nitrate. I think the war taught England the use of larger proportions of ammonium sulphate.

Mr. Wainwright. Is it being produced there commercially so it can compete with Chile?

Mr. Becket. They are in the same position as this country. Ammonium sulphate is a byproduct, and as here they can sell pretty cheaply.

May I make a final remark? The United States Department of Agriculture Bulletin No. 1180, which was issued yesterday and put in my hands during the recess, makes this statement:

"Urea seemed to be as readily available as sodium nitrate and equally as good in all respects as any other material used. Since urea is an excellent material physically and leaves neither a basic or acid residue in the soil, it should prove to be almost an ideal nitrogen carrier for all types of soil."

That is the Department of Agriculture's remark.

Mr. McKenzie. We are much obliged to you, Mr. Becket.

Now, gentlemen, I think that finishes up all the hearings so far as the witnesses present are concerned. To-morrow morning at 10 o'clock the committee will hold an executive session and determine on the course of procedure to be followed by the committee from now on.

Mr. Cottrell. Gentlemen, in order that you might visualize this process, I am extending an invitation to the committee interested in this to visit the nitrogen fixation laboratory at the American University grounds, where we would be very glad to show you the Haber process in operation on a small scale, that may help you much better, even those who have seen the big plant. The big plant is con-

fusing, but when you have it in a smaller form, see the ammonia running out, it will facilitate matters and enable you to understand it thoroughly. That is true of other processes. We have them running now. We are concentrating somewhat on the Haber line of work, but they are all at your disposal, and I want to say in connection with what you heard this morning that some of the people found we tried to give all the information available to everybody who wished it. We want to be of service to any people who have ideas on Muscle Shoals, that is one of our objects and we have tried to do that all along, without partisanship or favor in any way.

We have had inquiries from and conferences with a great many of the different representatives of projects, some of those who have come up here and some of those that have never gotten as far. Some of them found that they were on the wrong track after we talked to them, and we were able to steer them in lines more productive.

Mr. McKenzie. We thank you for the invitation, and I want to assure you that all the members of this committee and the people of this country appreciate the great work that you have been doing and you are doing now.

Mr. McSwain. I wish to ask if you are making experiments toward finding a way of producing urea?

Mr. Cottrell. Yes, we have been working along that line.

Mr. McSwain. That will be ours.

Mr. Cottrell. Yes, sir; that will be available.

Mr. Wainwright. I realize that the old members of this committee are experts, and some of the questions the newer members and I, myself, being a new member, might ask are rather crude, but I have been trying to get information on this matter.

Mr. McKenzie. I think probably some of the new members can ask more intelligent questions in connection with these matters than some of us who have been on this for a number of years, and have heard so much of this thing that we are going around in circles.

Mr. Wainwright. When I hear some of the statements made by members of the committe I am in a daze.

Mr. McKenzie. The committee will stand adjourned until 10 o'clock tomorrow morning.

(Whereupon at 4.45 o'clock p. m. the committee adjourned.)

Committee on Military Affairs,
House of Representatives,
Saturday, January 26, 1924.

The committee met at 11 o'clock, a. m., Hon. Julius Kahn (chairman) presiding.

Mr Hill of Alabama. Mr. Chairman and gentlemen of the committee, I take pleasure in presenting to you the Hon. R. V. Taylor, mayor of the city of Mobile, Ala.

The Chairman. We will be pleased to hear from you.

STATEMENT OF HON. R. V. TAYLOR, MAYOR OF MOBILE, ALA.

Mr. Taylor. Mr. Chairman and gentlemen, the city of Mobile has about 62,000 inhabitants. It is located in the southern part of Alabama, at the head of Mobile Bay, about 32 miles from the Gulf of Mexico. Many of its people have been greatly interested in the national discussion which has for a long time been going on with respect to the utilization and control of the great potential energy on the Tennessee River now going to waste at Muscle Shoals.

We have studied in a way the various propositions which are before this great committee. Victor Hugo, in discussing why Napoleon did not win the battle of Waterloo, after having thrown aside many of the causes which might have brought about this result, used these words:

"It was time that this vast man should fall.

"The excessive weight of this man in human destiny disturbed the equilibrium. This individual counted of himself alone more than the universe besides. These plethoras of human vitality concentrated in a single head, the world mounting to the brain of one man, would be fatal to civilization if they should endure. The moment had come for incorruptible supreme equity to look to it."

While stopping short of attempting to draw a parallel between the record of Napoleon Bonaparte in war and Mr. Henry Ford in finance and industry,

there are several points in the careers of each, the similarity of which must strike any philosophic observer with the power of self-demonstrating truth. At the Battle of Waterloo Napoleon was 46 years of age. Ford is to-day 54, and if we take into consideration the increase in longevity of human life in the last 100 years, he has to-day a reasonable expectancy as great as that of Napoleon when at the zenith of his powers; and, if he continues uninterrupted in his acquisition of wealth he may reach a position analogous to that which might have been occupied by Napoleon if he had won the Battle of Waterloo.

Napoleon, through the forces of war, and Ford, through those of industry and finance, are both possessors of more power than any men who ever lived before them or lived in their day. These conditions resulted from the fact that each of these masterful individuals possessed the power of being able to bring together in a composite whole great nnmbers of human units in such a perfect organization that the aggregate thus created was equal to the sum of the maximum capacity of each of its individual parts added to the force of the aggregate.

The records of both Napoleon and Ford are alike in that the first possessed and the latter possesses the power to draw a large number of enthusiastic adherents who follow without question wherever they may lead. I believe that Mr. Ford is as dictatorial and ambitious in his day and way as Napoleon Bonaparte was in his.

If these conclusions are true or even partially true, will it not be a most monumental mistake to permit our latter day Napoleon of industry and finance to become the owner of one of the greatest potential physical forces in all the world by the idle act of the greatest Government in the world? Before the United States of America turns over for a mere fragment of its cost, Muscle Shoals, to the richest man in the world, should it not pause to give time "for incorruptible supreme equity to look to it"?

I hold no brief for the Alabama Power Co. or any of its associated companies, but I do say it will be a hundred times better to give these companies the control of Muscle Shoals than to permit it to go to Mr. Ford.

The program of these companies is to dispense this power to all the people within the reach of its wares. They propose to turn the churn and washing machine of the farmer's wife and light his house, as well as illuminate great cities and furnish power for all industrial enterprises within its reach.

The distinguished chairman of this great committee was reported in a dispatch published in a paper the day I left Mobile which said he had addressed a public inquiry to Mr. W. B. Mayo, as representing Mr. Ford, and asked him what Mr. Ford would do with this power if he got control of Muscle Shoals, and Mr. Mayo said "he would use all of it for his own industrial plants." Therefore, I say that Mr. Ford wishes to harness the falling waters of the Tennessee River for his own purposes, and not disseminate some of it to the people generally.

Napoleon drew alluring pictures of the delights of the valleys of Italy in urging his soldiers to cross the Alps. Mr. Ford, in like manner, talks vaguely of cheaper fertilizers for the farmer in asking for Muscle Shoals, and the public mind has become indoctrinated with the false idea that cheap nitrates can be gotten only through Mr. Ford's control of this great water power. Every one should know, however, that this Government is great enough and wise enough to make provisions for a sufficient volume of electrical power to remain at its disposal, no matter who controls Muscle Shoals, to make sure that the agricultural interests of this country shall not suffer for the want of cheaper fertilizers, without its being required to sell its great birthright for a mess of pottage.

It goes without saying that this great Government which, without a moment's notice, took over the railroads of the country worth billions of dollars, if they should ever need Muscle Shoals they will take control of it in the flash of an eye, no matter who controls it.

Now, I speak for the people in my community. We have admiration for Mr. Ford. We admire him for his great intelligence, his great industry, and his thrift, but there is an old maxim that "all vice is but an excess of virtue." And I say that even those great virtues in the strong grip of one masterful hand may produce results so great in magnitude that they become vicious.

We do not want to envy Mr. Ford anything. If he needed it, we would be willing, perhaps, to contribute something to aid him in his great enterprises in blocks to him. But we would like to retain our share of the great power of Muscle Shoals to light our houses, to heat our homes, and to turn the wheels

of our industries. It is ours by a God-given right. That great water power there was created by God Almighty for the use of all of his people, and it should not be put in the hands of one individual for his own personal purposes.

I remember 17 years ago I visited Yellowstone Park. I never shall forget the effect, while I have forgotten the exact lettering, made upon me as I left the train and saw that great arch over this entrance of the great beauty spot and pleasure ground of this Nation, at Gardner, Mont., made upon the—I have forgotten the exact language, but it was about this, "Dedicated to the use and the benefit of all the people."

Then I say that these great natural physical advantages which have been given to our great country from the hand of a bountiful Providence shall be treated just as this great Government has treated Yellowstone Park. I thank you, gentlemen.

Mr. McKENZIE. I would like to ask you a question. I assume you have read the history of Napoleon very carefully, from what you said about him?

Mr. TAYLOR. I have not been a student of it, but I have read it superficially at least; yes, sir.

Mr. McKENZIE. Do you not get the same pleasure you did out of reading that history, in reading the story of how he took the crowns off of certain other rulers' heads and put them on the heads of his poor relations?

Mr. TAYLOR. I remember that; yes, sir.

Mr. McKENZIE. Do you think there is any parallel between Ford and Napoleon?

Mr. TAYLOR. No; I said there were several points of similarity. I did not attempt to make a complete parallel, no, sir. [Laughter.] I wanted to draw a parallel on the points that struck me, I do not know whether Mr. Ford has any poor relations, or not.

Mr. McKENZIE. I want to ask you this question, though, in all seriousness: As I understand your position, you desire to have this water power reserved for the benefit of the people of that section of the country?

Mr. TAYLOR. Yes, sir.

Mr. McKENZIE. Now let me ask you another question: Are there not sufficient other water powers in the South, if developed, to take care of the homes and the washing machines and the little village municipal lighting, and so on, outside of Muscle Shoals?

Mr. TAYLOR. I think not; no, sir.

Mr. McKENZIE. You are not posted on it?

Mr. TAYLOR. We have not a bit of electricity which comes from this source at Mobile.

Mr. McKENZIE. You understand, I take it, the objections made to the Alabama power companies proposition? Away back in 1916, when they appeared in this very room, asking for legislation, the objection made by many of us, and I was one of them, was that their proposition was a provincial proposition; that it was a proposition to reach into the Treasury of the United States for the purpose of developing a certain particular locality of the country. That was the objection. Now, is not that true to this very day?

Mr. TAYLOR. That, I do not know. If it is, then I will be against it, but my understanding is that they want to take this power for dissemination; that they want to sell it to all of the people, under governmental regulations, both as to price and as to all of the terms by which the sale is made. They are a public utility.

Mr. SPEAKS. But in that little restricted community, only?

Mr. TAYLOR. I do not so understand. I thought they would create a superzone which they would connect up and coordinate with all the other power sources and, whenever the peak of the load was heaviest at one point, it would be ready to be transferred to that point. That is my idea of it. I may be wrong.

Mr. McKENZIE. Is it not a fact that one of the great virtues, if there is any virtue in any of these propositions, of the Ford offer, is the fact that it is national in its character in more ways than one; first, that it takes into consideration the distribution of fertilizer throughout the entire country, at least, so far as it can be carried on the transportation lines of our country?

Mr. TAYLOR. Yes.

Mr. McKENZIE. That is one thing?

Mr. TAYLOR. Yes.

Mr. McKENZIE. We are all interested in that?

Mr. TAYLOR. Yes.

Mr. McKenzie. Now, is it not a fact that it is also national in that it provides for the maintenance, for 100 years, of the greatest plant for national defense—nitrate plant No. 2—that there is in existence in the world, perhaps?

Mr. Taylor. Yes.

Mr. McKenzie. Is not that true?

Mr. Taylor. Yes.

Mr. McKenzie. Now, all the people are interested in that?

Mr. Taylor. Yes.

Mr. McKenzie. That makes it national in character?

Mr. Taylor. Yes.

Mr. McKenzie. Now, is it not true that the Alabama Power Co. does not consider either one of those propositions seriously?

Mr. Taylor. The only answer I can make to that, sir, is that when I left Mobile, I read a statement in the paper, the daily press, that the chairman of this committee had addressed a communication to Mr. W. B. Mayo, representing Mr. Ford, asking, "If you get this power, what use are you going to put it to?" and Mr. Mayo replied, "It (the excess over the requirements for the nitrate plants) will be used entirely for the industries of Mr. Ford." Now, I say, no matter who uses it, this Government, if it needs it for the purposes of war, will take hold of it and, furthermore, some provision will be made that no matter who uses it, they will operate it for the production of nitrates necessary for the farmers. Of course, if we contract with those other companies—I am not, of course, attempting to make the same critical analysis you gentlemen are bound to make, but I have simply assumed that the fundamental difference between the offer of Mr. Ford and the offer of the associated companies is Mr. Ford will use the great bulk of this great power for his own purpose and the associated companies will use none of it for any of their industrial enterprises, but they will sell it to all the people at such rates and under such terms as the Government itself may instruct.

Mr. McKenzie. Even so, your people would benefit in that, would they not?

Mr. Taylor. We would be benefited; yes, sir.

Mr. McKenzie. Now I am not criticizing you, you understand, as a business proposition——

Mr. Taylor. Yes.

Mr. McKenzie. I am not criticizing, as a business proposition, any of these offers submitted.

Mr. Taylor. Yes.

Mr. McKenzie. The offer submitted by the Alabama Power Co. and their associated companies, I think, is the most liberal water-power offer I have ever had the pleasure of reading.

Mr. Taylor. Yes.

Mr. McKenzie. I am not criticizing any of the offers that have been made from a business standpoint. Those offers have been made by business men living in that section of the country, having in mind the disposition of the power created by this great dam or dams which may hereafter be erected. I am not criticizing that; but I am looking at this thing from the viewpoint, as I said, of a national proposition.

Mr. Taylor. Yes, sir.

Mr. McKenzie. You live in the city of Mobile, Ala., as I understand it?

Mr. Taylor. Yes, sir.

Mr. McKenzie. You are interested in having power?

Mr. Taylor. Yes, sir.

Mr. McKenzie. You want power sent to the city of Mobile?

Mr. Taylor. Yes, sir; that is right.

Mr. McKenzie. You have a direct, personal interest, you might say?

Mr. Taylor. That is right.

Mr. McKenzie. You have a direct interest in that proposition?

Mr. Taylor. Yes, sir.

Mr. McKenzie. You have navigation now, as I understand it, from the Tennessee River down through the Warrior River and then into the Tombigbee down to the city of Mobile?

Mr. Taylor. No; we have no line at all; we have no water power creating electricity.

Mr. McKenzie. I mean water for navigation?

Mr. Taylor. Oh, yes; we have our navigation; yes, sir.

Mr. McKenzie. You are interested, as every good citizen should be, in the development of that section of the country?

Mr. Taylor. Yes, sir.

Mr. McKENZIE. Now let me ask you this one pointed question: As the mayor of that city, in making the statement you have made here this morning, are you speaking for all of the people of that section of the country, or are you expressing your own individual views?

Mr. TAYLOR. I am expressing largely my own individual views, and such as I come in contact with. We, of course, have never put it to a vote, and you could not tell. You stop people and talk with people on the street, and they are not informed on this great subject. I will say I am a fairly well-informed man myself, but I only recently started to study this question, about 6 or 8 months ago. I do not mean to say that I am fully informed on it. I suppose I have the viewpoint of the farmers, and it seemed to strike me—but it may be I am wrong, maybe it is not, but what struck me was the fact that Mr. Ford expects to use the great bulk of this power for his own industries. If he is going to disseminate it to all the people, then my objection will be withdrawn. I clipped out of the paper, as I was coming up yesterday, the most marvelous statement in the world about Mr. Ford's output last year. He built more than 2,000,000 cars. It says, "Ford makes 2,200,682 cars, with probably an income of $500,000 a day. He will now go into making 10,000 machines a day."

I fear that in the natural order of things the excessive weight of this man will destroy the equilibrium.

I think you gentlemen know that once Mr. Pierpont Morgan's opinion in regard to the Equitable Life Insurance Co. of New York was that it was so immense, had gotten so big, that it was a menace to the equilibrium of the financial situation of this country. These ideas I think all reasonable thinking, thoughtful people share. I have no animosity toward Mr. Ford; I have the greatest respect and admiration for the fact that one man should be able to do all of this; but, I say, gentlemen, do not take from the other men this potential source of light, heat, and power to us, and give it to this great man, that he may become richer and we relatively poorer. Everything is known relatively, and do not do that, because we need this power and he does not; it was given by God Almighty to the people; do not give it to Mr. Ford. He does not need it.

Mr. SHERWOOD. The gentleman referred to the Battle of Waterloo as being one of the great battles of modern times.

Mr. TAYLOR. Yes, sir.

Mr. SHERWOOD. Is the gentleman aware at the Battle of Waterloo, the French losses were only 15 per cent and there were six or seven battles of the war of sixty-one to sixty-five where more than double that number of men were lost? The losses in the Battle of Franklin alone—the Confederate loss was 40 per cent in the six days of fighting, and it was all fought by volunteers, Americans. I do not want you to consider that the Battle of Waterloo was one of the great battles of modern times.

Mr. TAYLOR. I agree; I agree. [Laughter.] I indorse that. I had a friend who was at the Battle of Franklin; he was on the Confederate side, and he went over the embattlements and brought back ammunition to supply his men. I have heard him tell about it.

Mr. SHERWOOD. Thirteen Confederate generals lost their lives or were wounded at the Battle of Franklin—one more than were lost in all the battles fought in the World War.

Mr. TAYLOR. General, I take off my hat to you; I salute you, sir—I salute you! I agree with you [laughter] and I say, sir, you are an honor to this country, a man who, at your age, can talk back about what happened back in those days, virile and strong like you. I bow to you in reverence. [Applause.]

Mr. SPEAKS. I just want to ask whether or not Mr. Ford, instead of being a menace by reason of the great number of automobiles manufactured, has not benefited all of the people of the country, and if perhaps there has not more good resulted from the use of his good, cheap priced cars than from all of the other automobiles built, to say nothing about his tractors, and so forth?

Mr. TAYLOR. I will answer by saying I ride in one of them myself.

Mr. McSWAIN. Have you any fertilizer factories in Mobile?

Mr. TAYLOR. Yes, sir. We have a factory that uses cottonseed meal as its principal constituent.

Mr. McSWAIN. You do not have any acid chambers to convert phosphate rock into fertilizer?

Mr. TAYLOR. I am not certain about that. The Virginia-Carolina Chemical Co. has a plant there. I do not know exactly what their methods are.

Mr. McSWAIN. You have not heard them say anything about the matter, have you?

Mr. TAYLOR. No; not a word in the world.

Mr. SPEAKS. You realize a great many of the gentlemen on this committee have been intensely studying this question for four years?

Mr. TAYLOR. Yes sir.

Mr. SPEAKS. You realize that?

Mr. TAYLOR. Yes, sir; I realize that, and I am willing to approve of what they do; I have got to do it. [Laughter.]

Mr. QUIN. Mr. Taylor, I have been on this committee for about 11 years. When we took this matter up, the water was just going to waste down there like it did when the Indians occupied that country.

Mr. TAYLOR. Yes, sir.

Mr. QUIN. The United States Government, through this very committee, started erecting a dam there.

Mr. TAYLOR. Yes.

Mr. QUIN. After the war closed they stopped. There was a great division in Congress; a great many men did not want it finished at all.

Mr. TAYLOR. Yes.

Mr. QUIN. Now I want to suggest to you that those gentlemen who did not want it finished have been fighting Mr. Ford now, the gentlemen who control the finances of this country, and wanting to harpoon the masses of the people. They did not want that dam built down there for the people or anybody else. Now, then, since the Government proceeded to build it, it has sent out requests to all the different interests in the United States, asking them to make bids for it. And, do you know Mr. Ford was the only man who submitted to this Government any kind of a bid that carried out the two main features that caused that dam to be constructed by the Government?

Mr. TAYLOR. I believe what you say is correct.

Mr. QUIN. Well, now, up to this very hour, in the opinion of this committee, he is the only man in all the United States who has come up with a bid for that, which takes care of those two main features, and would you ask this committee to turn that down and tell him to go to hell?

Mr. TAYLOR. No, I would not ask them to tell him to go to hell, but if I thought I had a better bid, I think I would turn it down.

Mr. QUIN. We have not got it.

Mr. TAYLOR. Of course, that ends the discussion.

Mr. QUIN. Now, you understand, I live in the South, too, in Mississippi. Do you think, as a national project, that a committee of the United States Congress, representing this whole country, 48 States, are to consider a little 40,000 town down there in Alabama, against all of the 105,000,000 people in the United States?

Mr. TAYLOR. Oh, no.

Mr. QUIN. And, another thing, do you know that every Member in Congress from the Alabama delegation, the great State of Alabama, is up here against us to put Mr. Ford's bid through?

Mr. TAYLOR. I know that, and what I say may be very disagreeable to them.

Mr. QUIN. Do you want to handicap those men, and your own Congressmen, and to throw a monkey wrench into the machinery, and to carry out the will of this Wall Street enterprise up here that has endeavored to throttle this enterprise from its inception?

Mr. TAYLOR. No.

Mr. QUIN. That is what you would do.

Mr. TAYLOR. If I am right, it would not make a particle of difference to me if every member of the State of Alabama's delegation was against me.

Mr. QUIN. They are against you, and you are wrong.

Mr. TAYLOR. Oh, now, if I am wrong, there is no use in my arguing further.

Mr. QUIN. You are unintentionally taking the side of the big interests who are trying to throttle and kill this thing and you do not want to have any fertilizer made down there. Every fertilizer factory, through the president of the enterprise, standing right where you stand, before this committee, said there could not be fertilizer made down there and Ford would be a failure.

Mr. TAYLOR. You know, truth is eternal.

Mr. QUIN. I am telling you what they did.

Mr. TAYLOR. I do not accept your conclusions.

Mr. QUIN. It is bound to be the result. You have read this hearing?

Mr. TAYLOR. No, this is the first session I have attended.

Mr. QUIN. I mean did you not read what all these witnesses said about this thing?

Mr. TAYLOR. No, not all of them.

Mr. QUIN. Did you read what the experts said about it?

Mr. TAYLOR. No.

Mr. QUIN. Did you read what the Alabam Power witnesses said?

Mr. TAYLOR. I have not, except I understand they are going to make nitrates just the same as Mr. Ford is going to make nitrates.

Mr. QUIN. I am talking about two things. You are not aware of what went on in this committee?

Mr. TAYLOR. I think the thing is not what happened two years ago, but what happens now.

Mr. QUIN. You have here two big users of power. Now, then, what do you think has caused the Alabama Power Co. and its associates that endeavored to keep the Government from finishing that dam, and who concluded at that time that the Government was absolutely wrong and the thing was not possible and was absolutely worthless and could not succeed—what do you think has happened that they are now willing to come up and make the same sort of a proposition on the fertilizer end?

Mr. TAYLOR. I could not answer that question. I did not know that Mr. Ford had ever definitely said what he would do; I did not know he had even come here before you gentlemen; I heard he was very restrictive in what he said he would do.

Mr. QUIN. His representatives were here.

Mr. TAYLOR. But, so far as I have been able to determine, he has been exceedingly cautious; his promises have been very circumscribed.

Mr. QUIN. No; we have a contract; we have submitted to Congress a contract which bound him up, through his representatives, on what he was going to do. Have you not read that?

Mr. TAYLOR. Oh, yes.

Mr. QUIN. That specifically sets out what he has to do.

Mr. TAYLOR. If that is his contract, then it seems to me, to my best judgment, as far as the people are concerned, not talking about Mr. Ford—you talked about great interests—if there is any interest in this country any greater than Mr. Ford's, I do not know what it is; I do not know. My understanding is it is the greatest financial and industrial interest that ever existed in the world. If I am right, if I am not wrong, if that is true, then you could not talk about big interests, as this is what I would call a big interest.

Mr. QUIN. Yes.

Mr. TAYLOR. Is not that right; you admit that is true, that Mr. Ford represents a big interest.

Mr. QUIN. I say he is the greatest exponent of the masses of the people in the world, and I say that a crowd of financiers in this country endeavored to ruin him. You remember when he wanted a loan, and they were not willing to let him have it unless they could get control of his plant—this Wall Street bunch.

Mr. TAYLOR. I have great admiration for him.

Mr. QUIN. Is not he the man who has paid the highest wages and put out the lowest priced cars and the lowest priced tractors, against all of the combinations in the United States?

Mr. TAYLOR. Yes.

Mr. QUIN. And is he not the man who took over a railroad that failed and paid the men bigger wages, and then the Interstate Commerce Commission did not allow him to reduce the freight rates when he went before them on an application to reduce freight rates?

Mr. TAYLOR. He is very wonderful; I admit that.

Mr. QUIN. Is that kind of a big interest a menace to any man in this country, when he wants to lower freight rates and he wants to give higher wages and to sell stuff at lower prices?

Mr. TAYLOR. If he is the richest man in all the world and has a daily income of $500,000, I say, after all, he becomes a menace; he will destroy the financial equilibrium of the world.

Mr. MCSWAIN. If he is a very rich man, then the relatively lesser rich man would be a lesser menace; therefore your theory is reduced to Socialism.

Mr. TAYLOR. No; I am just as fearful of the lesser menace.

Mr. MCSWAIN. And your idea about this being a natural resource of the people of the United States, also applies to the coal in the hills.

Mr. TAYLOR. No.

Mr. McSwain. Did not God put the coal in the hills, like He put the water in the rivers?

Mr. Taylor. Yes.

Mr. Quin. Do you not know that Ford proposes to erect other dams there to make the stream navigable and to make that one of the great ports of the world?

Mr. Taylor. I have never seen that part of the contract.

Mr. Quin. You have read the hearings, and that is a part of it; that is what it does; that is what will be accomplished—to put Alabama on the map. Mr. Ford's proposition here, carried to its ultimate conclusion, will make your State, sir, one of the leading States of the Union, instead of having it fide-bound down there with a power company that is simply distributing power for the turning of some washing machines. [Laughter.]

STATEMENT OF MR. DOUGLASS TAYLOR, ATTORNEY AT LAW, OF HUNTSVILLE, ALA.

Mr. Taylor. My name is Douglass Taylor, of Huntsville, Ala. I am not related to the other gentleman, but would be very proud of it if I were.

Mr. McKenzie. Tell us what your occupation is.

Mr. Taylor. I am a lawyer. I have been requested by certain cotton-mill interests in my town, which has several large mills run with power furnished by Alabama Power Co., to appear before this committee and express certain views they have on the proposition that is before you. By way of introduction, I wish to state that if I create the impression before this committee that we are looking at it in any sense as a provincial or local proposition I am falling very far short of fulfilling my mission before you, because none of us down there look on it as a provincial or local proposition.

With relation to the questions involved in what is proposed to be done with the power at Muscle Shoals as a national question and as affecting the entire Nation most directly, I think, as stated by the chairman to Mr. Taylor, it is in the fertilizer proposition and in the national defense.

In my town there are a number of cotton mills, and, as compared with the Henry Ford interests, they might be considered, I think, as a poor relation, Mr. Chairman, and they were run by steam power up to about three or four years ago, when the Alabama Power Co. built a transmission line in there and since then every industry in that town has been pulled by hydroelectric power. I make that statement for the purpose of impressing on this committee, if possible, the fact that the leading industrial men in our town are familiar with hydroelectric power, and possibly more familiar than others with the conditions in the State, and they think this about it, that whereas, after all, the two most important things about this proposiion are for the Nation to get fertilizer and for the Nation to have a nitrate plant there for defense in time of war; still, they think that, in addition to that and as incidental to that, and strictly incidental to that, the water power that is generated there should be available to the public. And when I say the "public" I want to be distinctly understood that I do not mean the people of the Tennessee Valley; I do not mean the people of Alabama. I mean the public, construed just so far as that power can be transmitted.

They think there are other people in the United States who can make fertilizer besides the Henry Ford interests. They think those questions can be taken care of properly under the propositions before this committee, and they think if they can be taken care of by this committee, the proper way to develop Muscle Shoals is to accept such a proposition as will provide for the fertilizer and to provide for the nitrates plant as a defense in case of war, and then to provide for the distribution of the power.

And it seems to me that is the ideal way to develop that power.

Now, our people down there, and when I say "our people," I would not be understood as asuming to speak for the entire public of our community; I am speaking for certain parties there who are engaged in the manufacturing business, and when I say "our people," they are the ones I refer to. They look at it this way, that they are down there in an established business and, I might add, I think that my town, in a small way, is somewhat of a textile center—they look at it that they have started those mills, that they have run them, that they have made money, and that the item of power is a big proposition in a cotton mill, as well as any other manufacturing enterprise, and that

under the Ford proposition to the Government, Henry Ford can utilize all the power himself. He owns one or two cotton mils and they figure where would they be in competition with Henry Ford in the cotton mill business if Ford got his power from Muscle Shoals and they had to buy their power from the hydro-electric companies. No, that does not seem to me that is a provincial way of looking at it, because the cotton mill industry is a big industry throughout the South, and that proposition, it seems to me, affects every cotton mill at least in the South.

And when you come to taking care of the people. I was very much impressed by the testimony here yesterday on the subject of fertilizer, but it seems to me that we ought not to forget that while you have to raise food to feed the people, you also have to manufacture clothes to clothe them, and that that end of it is entitled to some consideration at the hands of the committee.

I think that about concludes what I desire to say to the committee.

Mr. McKENZIE. If I catch your point, in speaking for the men whom you represent, these cotton mill men——

Mr. TAYLOR. Yes, sir.

Mr. McKENZIE. Your fear is that if Henry Ford gets control of the extra power over and above what is necessary to manufacture fertilizer, and utilizes it in operating cotton mills, it would be a rather unfair competition?

Mr. TAYLOR. Yes, sir.

Mr. McKENZIE. Inasmuch as your clients or the men whom you represent would have to buy from the little power concerns and to pay a rate that would make competition difficult?

Mr. TAYLOR. Yes.

Mr. McKENZIE. Now I can understand that viewpoint; I am not criticizing it. It is perfectly proper. But thinking of the millions of people in the United States who have to buy cotton cloth, cotton clothes, in the event Mr. Ford should build a cotton mill and reduce the price of cotton direct to the general public, would we be justified in refusing to report the Ford offer on the ground that it might put your clients out of business?

Mr. TAYLOR. Well, I think you would. You are assuming in your question that nothing is being considered now except the question of competition, plus the benefit to the nation at large.

Mr. McKENZIE. Yes.

Mr. TAYLOR. But, as far as reducing the price of cotton goods is concerned, I do not think that you ought to assume, without some legal obligation or something to go on, that with this power that is furnished there (I would not say he would, but under his proposition to the Government), there is nothing to require that he will do anything further than just to reduce the price of manufacture to a point where the other people can not compete with him, and then take his profits from there down by reason of his subsidy. I do not think that you could assume, as a legal certainty, for instance, that he would not do that, if his proposition were accepted.

Mr. MORIN. I understand that the gentleman does not represent the power company, but that he represents a lot of manufacturers who want to share in the benefit of this power if it is distributed down there.

Mr. TAYLOR. That is true.

Mr. MORIN. Those are the men you represent?

Mr. TAYLOR. Yes, sir.

Mr. JAMES. You have power now from the Alabama Power Co.?

Mr. TAYLOR. Yes, sir; some.

Mr. JAMES. Either the rejection or acceptance of the Ford offer would not make any difference as concerns that power?

Mr. TAYLOR. It probably looks to you gentlemen that it would not; but I think I can see some local conditions there where I think it would.

Mr. JAMES. What is the population of Huntsville?

Mr. TAYLOR. Huntsville, including the cotton mills, represents a population of about 20,000 people.

Mr. JAMES. When did you leave Huntsville?

Mr. TAYLOR. I left Huntsville Wednesday night.

Mr. JAMES. You of course know that this committee did not get any fertilizer offer until yesterday?

Mr. TAYLOR. Yes, sir.

Mr. JAMES. We had no assurance until yesterday we were going to have such an offer.

Mr. TAYLOR. That is right.

Mr. JAMES. How can you state that your people down there are in favor of the fertilizer offer of the consolidated companies, when at the time you left Huntsville there was not any such proposition?

Mr. TAYLOR. I did not mean to state that my people were in favor of that proposition presented to you yesterday. What I did mean to convey was that they had discussed the fertilizer proposition at Muscle Shoals in connection with its disposition, and their idea was that the fertilizer end of it ought to be developed.

Mr. JAMES. But if you will refer to the record, I think you will find that you stated your people there were in favor of the fertilizer offer which has been made by the Alabama and associated companies.

Mr. TAYLOR. It was inadvertent if I did; and, if I did say that, I want to correct it.

Mr. MCKENZIE. You may correct that, if you did.

Mr. MCSWAIN. You have frankly admitted that you are not up here on any altruistic trip, but you are here representing certain clients.

Mr. TAYLOR. Certain business interests; yes, sir.

Mr. MCSWAIN. Exactly. Now, do you know or have you any reason to believe, as a result of certain questions asked here the other day, the southern power companies got in touch with the various manufacturing interests of the South, including your clients, and asked them to put up some sort of a protest here?

Mr. TAYLOR. Yes, sir; that is true.

Mr. REECE. The fact that the gentleman who is before us is here representing what he believes the interests of certain industries in which his people are engaged, I do not think in anywise detracts from the importance of what he has to say.

Mr. MCKENZIE. Not at all.

Mr. REECE. Whatever disposition is made of the plant is likely to affect certain industries and, as it affects the industries of the country, it affects the country and for that reason I think it is well for us to hear these things. The cotton industry in the South, the textile industry, as being developed down there, is of just as great national importance as the shoe industry in Massachusetts and certain other industries in the Northwest, and just because it affects the cotton industry and other industries in that section of the country does not mean that these gentlemen are looking at it from a provincial standpoint, and what they have to say ought not to be accepted offhand by the committee in that light, that they are representing a provincial viewpoint.

Mr. MCSWAIN. Will the gentleman yield?

Mr. REECE. Yes, sir.

Mr. MCSWAIN. Does it not strike the gentleman as rather peculiar that this cotton mill industry did not find out it was going to hurt them until the power companies told them it would? Does it not strike the gentleman as rather strange? [Laughter.]

Mr. TAYLOR. They found out.

Mr. MCKENZIE. If there are no further questions, I want to say to you, Mr. Taylor, that we appreciate your frank, straightforward statement. There is one thing, when a man comes before this committee, we are glad to hear him make a straightforward statement, and to put all his cards on the table. That is what we are here for, to get information from all angles. I am sure the committee appreciates your statement.

Mr. TAYLOR. That is very nice, Mr. Chairman, and I thank you.

STATEMENT OF MR. L. A. MAGRAW, VICE PRESIDENT AND GENERAL MANAGER OF THE CENTRAL GEORGIA POWER CO., MACON, GA.

Mr. MAGRAW. I am vice president and general manager of the Central Georgia Power Co., with headquarters in Macon, Ga. The Central Georgia Power Co. has been getting power from the Muscle Shoals steam plant for going on three years. This power is distributed in a territory of approximately 100 miles long and 30 miles wide.

Macon is a center of population, within a 60-mile radius, of somewhere around 600,000 or 700,000 people.

In the conversation this morning, it seemed there is some idea that the distribution of power from the Alabama Power Co.'s line is somewhat limited. We are 300 miles away from Muscle Shoals and the use of this steam plant has resulted in great benefits in the operation of the hydroelectric power

companies in Georgia. They suffered during four months from dry spells, and the use of the power from the steam plant has enabled them to carry over. We want that same situation to result so that we can get power from whoever develops Muscle Shoals. Apparently, if Ford gets Muscle Shoals, we will not be able to get this power in the future, and it is a very serious situation with us and we do hope that if the power is made available, we can get it in the years to come.

I think that covers my statement.

Mr. WRIGHT. Mr. Magraw, are you familiar with the streams throughout the South where water power has been undeveloped?

Mr. MAGRAW. Yes, sir.

Mr. WRIGHT. A great many water powers could be developed down there?

Mr. MAGRAW. Yes, sir.

Mr. WRIGHT. Are you familiar with Georgia?

Mr. MAGRAW. I am very familiar with Georgia streams.

Mr. WRIGHT. How many horsepower would you say could be developed from Goot Rock, which is just below Columbus, Ga., and apparently running to waste now? Is that not true?

Mr. MAGRAW. That is quite true, Mr. Wright.

Mr. WRIGHT. How many horsepower could be developed there?

Mr. MAGRAW. I do not know how many horsepower could be developed there.

Mr. WRIGHT. Approximately a million?

Mr. MAGRAW. I do not think they could develop a million.

Mr. WRIGHT. Eight hundred thousand?

Mr. MAGRAW. I would say 100,000, because most water powers are greatly exaggerated. Theoretically, they can produce a good deal, but when you go to develop that theoretical horsepower, you would have to flood perhaps the whole territory, including Atlanta, and to cover Fulton County with water. That same statement has been made of a good many other streams, and when the water power was developed it was a great deal less.

Mr. WRIGHT. Do you know the city of Franklin, Ga., on the Chattahoochee River?

Mr. MAGRAW. No, sir; I am not familiar with it.

Mr. WRIGHT. That alone would develop 60,000 or 80,000 horsepower, would it not?

Mr. MAGRAW. I do not know any stream that would develop a sixty or eighty thousand horsepower outside of the mountains of north Georgia.

Mr. WRIGHT. The Columbus Power Co. is proposing now to make another development—it has an application before the Federal Power Commission?

Mr. MAGRAW. Yes, sir. It has around 50,000 to 60,000 horsepower.

Mr. WRIGHT. On the Chattahoochee River?

Mr. MAGRAW. Yes, sir.

Mr. WRIGHT. Where are your dams?

Mr. MAGRAW. On the Ocmulgee River, at Jacksonville.

Mr. WRIGHT. The Flint runs down there?

Mr. MAGRAW. Yes, sir.

Mr. WRIGHT. There is a great many horsepower on the Flint?

Mr. MAGRAW. Yes, sir; 100,000 horsepower is the possible additional horsepower that can be developed there, but the increased demand for power is very easily going to absorb that.

Mr. WRIGHT. The water-power industry in Georgia is almost undeveloped, is it not?

Mr. MAGRAW. There is a lot of activity in water-power development there now.

Mr. WRIGHT. The Georgia Railway & Power Co. has just made another development, which has almost been completed, out on the Tallapoosa?

Mr. MAGRAW. Yes, sir.

Mr. WRIGHT. The Tallapoosa is a great water-power stream?

Mr. MAGRAW. I would say the Georgia Power Co. has possibly 100,000 horsepower for further development.

Mr. WRIGHT. And then the Etowah River is another available source of power?

Mr. MAGRAW. Yes, sir; there is some power available there.

(Thereupon the committee adjourned until Monday, January 28, 1924, at 10 o'clock, a. m.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Monday, January 28, 1924.

The committee met at 10 o'clock, a. m., Hon. Julius Kahn (chairman) presiding.

The CHAIRMAN. If Mr. Saville of the University of North Carolina, and Mr. Cole of Rockingham, N. C. are present, we will hear from them now.

STATEMENT OF MR. THORNDIKE SAVILLE, ASSOCIATE PROFESSOR OF HYDRAULIC AND SANITARY ENGINEERING, UNIVERSITY OF NORTH CAROLINA.

The CHAIRMAN. State what position you occupy, Mr. Saville.

Mr. SAVILLE. I am associate professor of hydraulic and sanitary engineering at the University of North Carolina; I am also hydraulic engineer for the North Carolina geological and economic survey.

The CHAIRMAN. Whom do you represent in this matter?

Mr. SAVILLE. I represent myself only.

The CHAIRMAN. Could you state to the committee what position you occupy in that matter?

Mr. SAVILLE. I have a statement here which I am prepared to read to the committee, expressing my point of view in this manner.

The CHAIRMAN. Very well.

Mr. SAVILLE. Does the committee care, for purposes of the record, to have me state my experience and training, or not, as in a court case?

The CHAIRMAN. Well, it would help if you could give it.

Mr. SAVILLE. I was educated at Harvard University, with the degree of A. B., and Dartmouth College with the degree of civil engineer, and the Massachusetts Institute of Technology with the degree of master of science, and with the same degree from the Harvard University.

I was sent by Harvard University abroad to investigate water power conditions and river conditions in Europe, as a "traveling fellow." I was first lieutenant in the Air Service of the Army and had charge of the design and construction of about $2,000,000 worth of permanent water supply and sewage disposal and drainage work at Langley Field, Va. After that, I went to the University of North Carolina, in my present position, and with the State Geological and Economic Survey, in connection with which I have been investigating water powers of the State of North Carolina for four years. I have been particularly concerned with that development in that State and in the general southeastern region as it affects power development and transmission in North Carolina.

The CHAIRMAN. That is a very full and very useful statement to the committee.

Mr. SAVILLE. The reasons for my appearance before the committee are these:

The Southeastern States are vitally concerned with the disposition of power from the Muscle Shoals developments. North Carolina is particularly interested, due to the tremendous expansion of its industrial progress during the past few years. This expansion, which has resulted in North Carolina becoming the second largest cotton manufacturing State in the country, and the principal manufacturing State in the Southeast, is wholly predicated upon the availability of cheap power. Up to the present, this power has been made available by hydroelectric development upon streams in the State, and to some extent from developments in South Carolina on streams deriving most of their water from drainage areas in North Carolina. The time when our water-power resources will be wholly developed can be forecast with some exactitude, and this time will occur probably within ten years. This fact is indicated by statistics compiled by me for the North Carolina Geological and Economic Survey and available for the committee if desired. They have been published as Circular 60 of the Survey.

During this ten-year period the construction of the undeveloped water powers of the State will proceed at an increasing cost per unit developed, due to the remote location of the undeveloped powers and to the fact that many of them are in any event not susceptible of cheap development. The consumption of electrical energy in North Carolina has increased from approximately 50,000,000 kilowatt hours in 1917—I should say the "output" rather than "consumption." The consumption is greater than the figures I am going to indicate; this is output.

The output of electrical energy in North Carolina has increased from approximately 50,000,000 kilowatt hours in 1917 to 650,000,000 kilowatt hours in 1919 and from that to 1,307,000,000 kilowatt hours during the past year.

That is, the output of the electrical energy has practically been doubled within the last four years.

North Carolina is the greatest electric-power-consuming State of the South. If our industries are to expand and the prosperity resulting therefrom is to continue, large amounts of power from outside the State must be available for use within the State, certainly within the next 10 years. But so long as cheap power can be brought into the State the time will be put off when it will become necessary to develop the expansive undeveloped powers within the State.

A very large amount of cheap power is to be made available at Muscle Shoals. It is my purpose to indicate that it is very greatly to the advantage of the entire citizenship, not only of North Carolina but of the whole Southeast section, but this power should be made available to the industries and to the farmers throughout this section rather than be concentrated in a single block of power for manufacturing purposes in the immediate vicinity of Muscle Shoals. I shall attempt to show also that for maximum economy the development of power at Muscle Shoals must be predicated upon some such widespread distribution as would occur if it were made available to the Southeast section.

Taking up now the effect of Muscle Shoals power upon industrial growth of North Carolina, the necessity for increased cheap power has been pointed out in the preceding paragraph. There is no question but what the availability of power from Muscle Shoals in North Carolina would be a large factor in enabling this State to maintain its industrial progress. This same statement applies, to a somewhat less extent, to other sections of the Southeast. It has been stated that the Muscle Shoals power can be sold at from 3 to 5 mills per kilowatt hour. Power companies in this and adjoining States are unable to sell their power at bus bars of the companies at less than 8 to 10 mills per kilowatt hour, on the average. Should the Muscle Shoals power be utilized for manufacturing purposes at the point where it is generated it would mean in effect an underwriting of this location by the United States Government. The Southeast as a whole would be placed in a very unfavorable position as regarding competition for industrial development, and progress in this respect would undoubtedly be slowed up until all of the cheap power at Muscle Shoals was utilized.

I wish now to consider the effect on farm interests in North Carolina: The development of the industry of the South has been so great that the power companies have, for several years, been far behind the demand for power for these industries. At the present time, however, the power companies are beginning to develop rural lines to serve the great agricultural communities of the South. Several of such lines are in evidence and their number is constantly growing. These bring to the farmer the conveniences which make life comfortable on the farm and thus serve to keep our rural population contented and stop the cityward migration of farm people. Moreover, this power enables the farmer to perform much of his labor by mechanical means, reducing the labor problem and increasing the efficiency of his operations. The total amount of power which can and will be required by farm users is considerable. This power and this advantage will accrue with certainty to the farmer if cheap power from Muscle Shoals is made available for distribution throughout this section.

The production of fertilizer by the Muscle Shoals plants is problematical at present. The amount of power to be devoted to the making of fertilizers is essentially the same under all of the propositions now pending before Congress.

Mr. McKENZIE. May I ask a question right there: Do you make it as a positive statement that Henry Ford will not manufacture fertilizer at Muscle Shoals unless he can make 8 per cent?

Mr. SAVILLE. I have that statement from the minority opinion on the testimony before the committee last year, if I remember, by Representative Kearns.

Mr. McKENZIE. Have you read the bill?

Mr. SAVILLE. Yes, sir; I have read the bill.

Mr. McKENZIE. What do you say about that language in there? You are a graduate from Harvard University, the Institute of Technology, and so on, and what do you say about the language as to whether he is required to make a profit at all?

Mr. SAVILLE. I say the language is indefinite; he does not commit himself.

Mr. MCKENZIE. Please tell us wherein it is indefinite. That is what we want to get at. If that is indefinite, we want to know. Just read section 14, if you please, to the committee, and then point out to us, if you can, where that is indefinite.

Mr. SAVILLE. Do you wish me to read the whole section? It is quite long.

Mr. MCKENZIE. I think it will be all right, yes. Just read it so that we can get the full meaning of it, and then I want to hear your criticism.

Mr. SAVILLE (reading):

"Since the manufacture, sale, and distribution of commercial fertilizers to farmers and other users thereof constitute one of the principal considerations of this offer, the company expressly agrees that, continuously throughout the lease period, except as it may be prevented by reconstruction of the plant itself, or by war, strikes, accidents, fires, or other causes beyond its control, it will manufacture nitrogen and other commercial fertilizers, mixed or unmixed, and with or without filler, according to demand, at nitrate plant No. 2 or its equivalent, or at such other plant or plants adjacent or near thereto as it may construct, using the most economical source of power available. The annual production of these fertilizers shall be a nitrogen content of at least 40,000 tons of fixed nitrogen, which is the present annual capacity of nitrate plant No. 2. If during the lease period said nitrate plant No. 2 is destroyed or damaged from any cause, the company agrees to restore such plant, within a reasonable time, to its former capacity and further agrees:

"(a) To determine by research whether by means of electrofurnace methods and industrial chemistry there may be produced on a commercial scale fertilizer compounds of higher grade and at lower prices than farmers and other users of commercial fertilizers have in the past been able to obtain, and to determine whether in a broad way the application of electricity and industrial chemistry may accomplish for the agricultural industry of the country what they have economically accomplished for other industries, and if so found and determined, to reasonably employ such improved methods.

"(b) To maintain nitrate plant No. 2 in its present state of readiness or its equivalent for immediate operation in the manufacture of materials necessary in time of war for the production of explosives."

Mr. MCKENZIE. Now, in section 15 is the other provision about the 8 per cent.

Mr. MCSWAIN. I think, in fairness, he ought to read that, too.

Mr. SAVILLE (reading):

"In order that farmers and other users of fertilizers may be supplied with fertilizers at fair prices and without excessive profits, the company agrees that the maximum net profit which it shall make in the manufacture and sale of fertilizer products shall not exceed 8 per cent of the fair actual annual cost of production thereof."

Mr. MCKENZIE. I think that is far enough. Now, what is your criticism of that language; wherein is it indefinite?

Mr. SAVILLE. The language recounted in the bill is not indefinite; no, sir.

Mr. MCKENZIE. Then why did you make the statement?

Mr. SAVILLE. I will retract the statement that the language is indefinite. It is the shortest way. It makes no difference either way so far as concerns my testimony. The statement which I made here relating to the 8 per cent was from the testimony, as I said, gathered from reading a statement of Representative Kearns; and also Secretary Weeks, I think, stated that Mr. Ford told him he would not make fertilizer unless he could make 8 per cent profit. So far as the bill is concerned, I think the language is definite concerning the 8 per cent feature.

Mr. MCKENZIE. You understand, regardless of any statements that may have been made outside, here is the contract?

Mr. SAVILLE. Yes.

Mr. MCKENZIE. And when that contract is signed, the contract will be binding and not affected by any outside statements?

Mr. SAVILLE. I will admit that. That does not affect my testimony, though.

Mr. MCKENZIE. I understand. But what I am getting at is that you, as a graduate of three or four universities, are willing to say to this committee there is not anything indefinite in the language of this bill?

Mr. SAVILLE. With reference to that particular part.

The amount of power to be devoted to the making of fertilzer is essental the same under all of the propositions now pending before the Congress. So far as the farmers' interests in cheaper fertilizer is concerned, there seems to be absolutely no benefit to be gained from the Ford offer, which is not equally

present in the other offers . On the other hand, the farmers of this region will certainly benefit if Muscle Shoals power is transmitted——

Mr. JAMES. You say there is no difference between the Ford offer and the new offer?

Mr. SAVILLE. No, sir? There seems to be little difference so far as the farmer's interest in cheap fertilizer is concerned, between the two offers.

Mr. JAMES. You understand that under Mr. Ford's offer he agrees to make at least 2,000,000 tons of fertilizer and, under the new offer, they start in with the equivalent of 250,000 tons, one-eighth of what Mr. Ford guarantees to manufacture. So it does make a difference between 2,000,000 tons and 250,000 tons of fertilizer to the farmers, does it not?

Mr. SAVILLE. If you will point out to me the place where that is in the bill, I will testify to that fact.

Mr. QUIN. I presume the gentleman has read this.

Mr. SAVILLE. Yes, sir.

Mr. QUIN. Well, you criticized it yourself.

Mr. MCSWAIN. He is assuming 40,000 tons of fixed nitrogen means 2,000,000 tons of fertilizer.

Mr. SAVILLE. That is it.

Mr. MCSWAIN. He is speaking of the concentrated form. May the witness proceed, Mr. Chairman?

The CHAIRMAN. Yes; proceed.

Mr. SAVILLE. Under the latter offer, under the power companies' offer, the States will still stand to share in any possible benefits from cheap fertilizer manufactured at Muscle Shoals.

With respect to the proprietary interest of North Carolina in Muscle Shoals power: About one-third of the total drainage area of the Tennessee River above Muscle Shoals rises in North Carolina. The Little Tennessee, Hiwassee, French Broad, Pigeon, and Watauga Rivers all have their sourse in the mountains of North Carolina and are important tributaries of the Tennessee. Much of the ultimate power to be developed at Muscle Shoals is predicted upon the construction of headwater storage reservoirs on the tributary streams in this State. Moreover, the streams in this State form a particularly valuable adjunct to the Muscle Shoals power, because of their very high unit run-off and small amount of silting upon them, due to the large and increasing areas of State and National forest reserves on the headwaters. The State itself has taken great interest in having these forest reserves established and has had in mind as part of its purpose in this respect the advantages which accrue to water-power development therefrom.

It is apparent, therefore, that the practical benefit conferred upon the Muscle Shoals developments from the fact that a considerable proportion of the drainage area lies in North Carolina, should be taken into account, and that this State should realize some benefit from the natural resources which it has contributed toward enhancing the power at Muscle Shoals. No more just method of allocating the State's interest in these waters can be imagined than that a certain amount of the Muscle Shoals power should be made available for use in North Carolina.

I next take up the conservation of natural resources in the South. As stated, the industrial growth of the South has been predicated largely upon the development of hydroelectric power and its availability over a widespread area at low cost. Like all such power this is to some extent seasonal; that is, only a small proportion of the total developed water power is primary power and available for the entire year through dry periods. The considerable amount of power which is only available in average or wet periods must either be sold as secondary power at a low rate only during the relatively short periods when the plants can produce it, or else this may be turned into primary power either by construction of steam auxiliary plants, or by transfer of power surplus from other regions for use during the dry periods. As the industrial demands for power in this and adjoining States have grown, the power companies have been forced to develop more and more steam power in order to utilize the secondary water power. This is well exemplified in North Carolina, where in 1920 the output by water power from electric generating stations was 93.2 per cent of the total and in 1923 this had fallen to 82.4 per cent. During the same period there has been constructed 96,000 horsepower in water power and 80,000 horsepower in large steam stations. The amount of steam power seems to be out of all proportion to the water power, and has been necessary to carry the older water power plants during periods of low flow. It follows

then, that in spite of the rapidly increasing development of water powers in the Southeast there is at the same time a rapidly increasing development of steam power, which is only used during a portion of the time when the flow in the streams is low. I may add that during the past year, for the first time in North Carolina, the output by steam in one month has exceeded the monthly output by water power in the same month.

The amount of coal consumed by these large steam stations is very great and constitutes not only a considerable drain upon southern coal fields but places an additional burden upon the already congested railroads which have to bring this coal over the steep mountain grades. It is a fact that the Southern Railway is at present about to double track is line from Asheville to Newport, largely on account of the heavy increase of coal traffic.

The introduction of surplus power from Muscle Shoals steam or hydro plants would serve to prevent the use of a great deal of coal in this section. That this is not of mere theoretical interest is shown by the fact that during the dry seasons of the last three years the Alabama Power Co. has transmitted power from the Government steam plant at Muscle Shoals to Georgia and to North Carolina. In one year this amounted to 100,000,000 kilowatt hours. This relaying of power to these sections has enabled industries to keep going which would otherwise undoubtedly have had to shut down in times of extreme drought, such as was recently experienced.

With relation to southeastern superpower system, mention has been made in a preceding paragraph of transference of power from the vicinity of Muscle Shoals to North Carolina, a straight line distance of over 600 miles. The actual distance which the power was transmitted from the Muscle Shoals district is nowhere near 600 miles. The power is sent over the lines of the Alabama Power Co. into Georgia on to the lines of the Georgia Railway & Power Co. This company uses the power in Georgia and sets free an equal amount of power over its lines into South Carolina, where the Southern Power Co. takes it over its lines and delivers it to the lines of the Carolina Power & Light Co. at Raleigh. It is not practicable to transmit power at the present time over such distances as 600 miles at the voltage used in this region, but the methods of relaying power described results in the same effect and, so far as North Carolina is concerned, is even more satisfactory than a direct line from Muscle Shoals to Raleigh.

This sort of transmission of power would not be possible were it not for the fact that all the great power companies of the South, some 9 or 10 in number, have their high-tension transmission lines interconnected. This great interconnected system, the most extensive east of the Mississippi River, makes possible a far more economical utilization of the Muscle Shoals developments than could be obtained in any other way. This advantage accrues through the diversity of demand which obtains throughout the Southeast section served by this network of some 2,000 miles of lines. Over this great area the loads are very varied, the maximum in different places occurring at different times. Moreover, on many of the larger rivers developed in these States there exist great storage reservoirs, which are totally lacking on the Tennessee or on its tributaries at or above Muscle Shoals. Furthermore, the conditions of stream flow over this entire area from the Tennessee River south to New Orleans and east to the Atlantic Ocean are rarely the same on all parts of the area at the same time. When there is a great drought in the Piedmont section of North Carolina it often happens that there is a normal rainfall, or even an excessive rainfall, on the western slopes of the Blue Ridge, draining into the Tennessee. The opposite conditions may also occur.

From these three factors of great diversity in load, existence of large storage reservoirs on the interconnected system, and the diversity in stream flow there results a condition whereby the 500,000 horsepower of secondary power at Muscle Shoals can be most economically developed. Thus, when there is high water in the Tennessee and Muscle Shoals is producing 600,000 horsepower, some of the larger reservoirs in the eastern section can be shutdown while the Muscle Shoals power is in part transmitted to that region. Then, when Muscle Shoals can produce only its 90,000 primary horsepower, the storage reservoirs in other parts of this section can be opened and the power developed will in part be transmitted into Alabama. This reduces the use of steam power to a minimum and makes possible a utilization of Muscle Shoals power which would not be economical under any other system.

Any proposal to utilize anything approaching this 500,000 horsepower of secondary power at manufacturing plants in the immediate vicinity of Muscle

Shoals would be largely predicated upon the erection of a steam auxiliary plant of nearly the same capacity. This would mean an uneconomic proposal and would be criminally wasteful of the Nation's coal supply. In addition, it would be a step backward toward practices which are now regarded as archaic. The whole trend of modern science and modern industrial progress have indicated that the interconnection of all great power plants makes for the most economical use, and for the maximum conservation of both water and coal resources. It is such an interconnection which Secretary Hoover and many eminent engineers have been advocating for the industrial regions in the Northeast, and toward which those regions are working. This sort of system is already in effect on a large scale in the South, and any such tremendous exception as an isolated plant of 500,000 horsepower at Muscle Shoals would be an anachronism.

With relation to railroad electrification: One of the most promising methods by which our coal supply may be conserved and congested traffic conditions reduced, is by electrification of the railroads. This is common knowledge among engineers. The electrification of the heavy grades running east and west across the Blue Ridge Mountains will undoubtdly be an early development. Located as they are in the midst of a region relatively rich in water powers, the railroads will look to hydroelectric developments in large part to supply their needs for electrification. Situated at one end of these main east-west railway lines, Muscle Shoals and the adjoining water powers could play an important part in carrying forward the desirable project of railway electrification. By virtue of the interconnected power systems, Muscle Shoals plants would be enabled to help out the electrification of railroads for many miles east of the site. This result of interconnecting the Muscle Shoals plant with the existing and future power lines would powerfully aid in conserving our coal, and improve our economic condition in the Southeast through lightening the burdens of the railroads in transporting coal.

Other economic effects are: It has already been pointed out how the industrial progress of the Southeast has been predicated upon the availability of cheap water power. All industrial development rests largely upon the use of power, and the per capita power used in a given part of the country is a direct indication of the economic progress of that section. If the industrial position of the Southeast is to be maintained and to continue, and if the standard of living of the rural population of these States is to be improved, this section must become more and more dependent upon an adequate and increased power supply. This power supply in the southeastern region must come principally from hydroelectric sources. To utilize the existing sources to the utmost, every hydroelectric development must be interconnected to obtain the factors of diversity in load, utilization of storage, and diversity in stream flow. Economists have pointed out that individual or local power generation makes for highly concentrated industrial developments in a power region especially favored by geographical conditions. This would be the result following utilization of most of the Muscle Shoals power in situ. It is generally conceded that such concentration of industries is a detriment to most efficient and profitable industrial growth, and injuriously affects social and political conditions.

These evils of industrial concentration can best be overcome by a comprehensive system of interconnected power transmission lines. Such a system makes power available over great areas and tremendously extends the territory available for industrial developments. It has been found that large manufacturing concerns desiring to come to the South from economic causes do not wish to develop their own water power, but prefer to locate under the lines of power companies where they may have good railroad and labor facilities, may get their raw materials cheaply, and have their power brought to them at reasonable rates. This relieves industries of excessive transportation charges upon their raw and manufactured goods, and leaves them free to enter a territory best adapted for their individual needs, irrespective of the presence of near-by water or steam power.

The availability of such a transmission network in the South has well illustrated the advantages to be expected from a still greater extension of such a system. It has opened up territory formerly barren; it has given employment to thousands of natives who previously were unable to make a decent living from the soil; it has brought into the region great industries which previously had to locate near power sources in other States and away from where raw materials and labor were best adapted to their needs. The extension of this beneficial system, a system upon which depends, in a great measure, the continued prosperity and well-being of all rural population, is

predicated largely upon increased amounts of hydroelectric power. There is no power source in the South to-day which can create the same amount of power as cheaply and as quickly as can the developments at Muscle Shoals.

With relation to the Federal power law: Three years ago, after many years of controversy, Congress finally adopted a Federal power law which on the whole has proved most satisfactory and has been a great stimulus to water-power development on streams under Federal jurisdiction. This law has also, in the main, been satisfactory to State authorities and regulatory bodies. The law provides for licensing not to exceed 50 years. It provides for maintenance of all project structures by the licensee. It provides for recapture of the project by the Federal Government at the end of the period if so desired. It provides for regulation by State regulatory bodies. The proposal of the various power companies in regard to the Muscle Shoals developments puts these developments and these companies under the operation of the Federal power law. The proposal of Mr. Ford places him outside the operation of this law. It gives him a monopoly of this tremendous national resource for a period of 100 years without any sort of State or Federal regulation, and without requiring him to repair or maintain the project structures. The Nation, having adopted the Federal power law would show a great lack of judgment to make such an outstanding exemption for anyone. I most urgently recommend that even if the considerations outlined above, attempting to indicate the advantages which would accrue from having this power interconnected with the Southeast super-power system are not recognized as sufficient, and the project is given to Mr. Ford or any other manufacturer; such permission should be wholly predicated upon the project being placed under the operation of the Federal power law.

The CHAIRMAN. Do I understand from your paper that you want the Federal Government to go into the business of selling the power to any individual who may apply for it?

Mr. SAVILLE. No, sir. My paper is essentially an argument for the proposal by the power companies which now operate the southeastern network.

The CHAIRMAN. And it is your intention to have the power sold by these companies?

Mr. SAVILLE. Generated and sold by these companies.

The CHAIRMAN. So that if the committee finally agrees to sell it to any one company, the users of the power can make their arrangements with that company which gets it from the Government?

Mr. SAVILLE. Yes, sir.

Mr. MCKENZIE. If I clearly understand the gentleman's viewpoint, and I think I do, your objection to the Ford proposition is that you object to a concentration of the use of all of the power developed at Muscle Shoals in that particular locality?

Mr. SAVILLE. Yes, sir.

Mr. MCKENZIE. Would you object to that if all that power was used in the manufacture of fertilizer?

Mr. SAVILLE. Yes, sir.

Mr. MCKENZIE. Do you understand, if Mr. Ford undertakes to sell any of the power generated, that he will come under the water power law and the State Utilities Commission?

Mr. SAVILLE. No, sir.

Mr. MCKENZIE. How do you come to that conclusion?

Mr. SAVILLE. I find nothing in the bill which places him under the Federal power law.

Mr. MCKENZIE. You have read the statutes, have you not? Do you think that Mr. Ford would be outside of the statutes if he undertook to enter into the commercial sale of electric current, in competition with other concerns?

Mr. SAVILLE. He would not have to enter into it in competition, necessarily.

Mr. MCKENZIE. As long as he used the power for himself, he would not be subjected to those laws; but if he undertook to sell it to some other concern, or to an individual, is it not your understanding that he would be subject to the same laws as the other power companies?

Mr. SAVILLE. He would be subject to regulations by the State laws under those conditions; yes, sir.

Mr. MCKENZIE. Your real objection, then, is to the concentration of the use of the power at one particular place, instead of having it disseminated over North Carolina and the surrounding country?

Mr. SAVILLE. That is my principal objection, yes, sir.

Mr. HULL. I would like to ask you with regard to an answer you gave to my colleague [Mr. McKenzie], during the reading of your paper, about the definiteness of this contract. Now, you are not a lawyer?

Mr. SAVILLE. No, sir.

Mr. HULL. You did not want to go on record as saying it was definite?

Mr. SAVILLE. No, sir; neither way. I am not concerned primarily with the fertilizer aspect.

Mr. HULL. I just want, briefly, to call your attention to the fact that in here are "other causes," and Section 14 is all directed, as I understand—I am not a lawyer; there will be lawyers, of course, in regard to this matter, but the entire section, the entire guarantee of fertilizer is predicated upon subsection (a), "To determine by research whether by means of electric-furnace methods and industrial chemistry there may be produced on a commercial scale fertilizer compounds of higher grade and at lower prices than farmers and other users of commercial fertilizers have in the past been able to obtain, and to determine whether in a broad way the application of electricity and industrial chemistry may accomplish for the agricultural industry of the country what they have economically accomplished for other industries, and if so found and determined, to reasonably employ such improved methods." Your whole conclusion is predicated upon that one part, if I am a lawyer or any kind of a lawyer. That will be brought out.

Mr. MCSWAIN. I am not much of a lawyer, but I deny it.

Mr. GARRETT. Is the gentleman testifying——

Mr. HULL. Just a little further——

Mr. GARRETT. I submit, Mr. Chairman, he is not entitled to testify and to put words in the mouth of the witness on matters which the witness admits he knows nothing about. Now, if Mr. Hull wants to put his testimony in, or his construction, he has a right to that in executive session or at another time; but it is not right to put a witness on the stand and read what he says is the crux of the whole matter, and then to ask the witness to testify to it.

Mr. HULL. That is all right. I was doing just exactly what my colleague [Mr. McKenzie] did; I was cross-examining the witness. I know my rights. I will go on to another matter.

The CHAIRMAN. The witness is here at the table. The committee will kindly cross-examine the witness in accordance with the rules that have generally prevailed before the committee. Now, go ahead.

Mr. HULL. Well, he testified——

The CHAIRMAN. The testimony speaks for itself. It is all in the record.

Mr. HULL. Now, I want to ask you in regard to the Government's distribution of this power. You testified here that you were not in favor of the Government selling this power; is that right?

Mr. SAVILLE. Selling or leasing the power developed at Muscle Shoals.

Mr. HULL. You are not in favor of selling or leasing—I do not understand.

Mr. SAVILLE. I say I am in favor of either selling or leasing the power developed at Muscle Shoals.

Mr. HULL. And now this is the question I want to bring out: I am wholly at sea myself, and I am trying to find somebody who knows. Would it be possible for the Government economically, in your opinion, to set up an agency down there by which they would sell this power themselves instead of leasing it to some corporation? Would it be possible for them to sell it as there was a demand produced?

Mr. SAVILLE. Unquestionably possible; probably not as economical.

Mr. HULL. You testified further in regard to the prices that Mr. Ford could obtain (and this is quite an interesting question; Mr. McKenzie spoke about that, and I am wholly at sea): If we pass a law in Congress, giving this property to Mr. Ford, he would not come under the Federal power act, would he?

Mr. SAVILLE. That is my understanding.

Mr. HULL. Yes, that is right. Now, would he come under the State commission?

Mr. SAVILLE. Only if he sold power for public utility purposes.

Mr. HULL. That is, if he sold at all to other factories, either at Muscle Shoals or anywhere else, he would come under——

Mr. SAVILLE. No, sir; not if he sold for manufacturing purposes solely. He would then be in the light of a manufacturer selling wholesale power to another manufacturer, and it is not, I think, under the general law—of course, I am not familiar with the Alabama public utility law, but, in general, such laws relate only to power which is sold for public utility pur-

poses, and if he did not sell it for public utility purposes he would not then come under the State law.

Mr. HULL. If he sold power to the Tennessee Power Co——

Mr. SAVILLE. Yes, sir.

Mr. HULL. Or the Alabama Power Co., he would be under the Federal power act and then he would be under the State commissions?

Mr. SAVILLE. Yes, sir; at least probably under the State commission.

Mr. HULL. If he sold them any of that power?

Mr. SAVILLE. Yes, sir.

Mr. WURZBACH. About how much undeveloped water power have you in that section of the country in which these power companies are now operating?

Mr. SAVILLE. I am not prepared to state except for North Carolina. In North Carolina we probably have in the neighborhood of a million and a half undeveloped power; but that does not mean power which can be economically developed. That is the total undeveloped power of all sorts.

Mr. WURZBACH. That is a million and a half of what?

Mr. SAVILLE. Undeveloped horsepower, but lots of that is in small units; lots of it is not susceptible at present of economical development.

Mr. WURZBACH. How about the State of Georgia? Is there more undeveloped power in that State than there is in North Carolina?

Mr. SAVILLE. My opinion is that there is not.

Mr. WURZBACH. There is not as much?

Mr. SAVILLE. My opinion is it is not.

Mr. WURZBACH. If these power companies were to gain control of the Muscle Shoals power, the other undeveloped water powers would probably not be developed for a great many years?

Mr. SAVILLE. No, sir. I think that the other powers which are susceptible of economical developments would be developed almost as soon with Muscle Shoals power available as otherwise; not quite as soon. Of course, that is the argument for getting Muscle Shoals power, that it is cheaper to our section for power than the other power which can now be developed.

Mr. WURZBACH. It was my impression there would be a great inducement on the part of the power companies to develop all of the water resources of that section if Muscle Shoals was put in control of some one else besides these water power companies, and I was wondering if that would not be a benefit to all of that section of the country?

Mr. SAVILLE. No, sir; because the losses in transmission from Muscle Shoals would more than offset the benefits to be derived from the development of the power in those States which can be economically developed. That is, if we could develop a power there economically, we could get that power cheaper than we might by a direct line from Muscle Shoals, where we have transmission losses.

Mr. WURZBACH. Then there would not be any particular advantage, would there, to these power companies in getting Muscle Shoals?

Mr. SAVILLE. Yes, because a great deal of that power can be transmitted more cheaply by relaying through the interconnected network.

Mr WURZBACH. What is the loss in transmission?

Mr. SAVILLE. That varies, of course. The Southern Power Co. loses from 15 to 20 per cent in their lines, but they have got very long and poorly regulated lines. Other companies will lose perhaps 10 per cent. I would say perhaps 10 to 12 per cent was an average loss.

Mr. FROTHINGHAM. I have not heard all of your testimony, but on this one point, this proposed lease is for 100 years and you say that Mr. Ford's company would not come under the federal water power act?

Mr. SAVILLE. No, sir.

Mr. FROTHINGHAM. And that he could use all of that power, or the company could use all that power, in the manufacture of automobiles or other things, or mills, and still not come under that act?

Mr. SAVILLE. That is my understanding.

Mr. FROTHINGHAM. That only if his company sold power would they come under State regulation or Federal regulation?

Mr. SAVILLE. I do not see how, under any circumstances, he would come under Federal regulations under this bill, whether he sold power or not; but, in my opinion, he might come under the state law if he sold power to public utilities.

Mr. REECE. How far can power be economically transmitted and what is the relative transportation loss for the various distances?

Mr. SAVILLE. Well, sir, I am not an electrical engineer; I am a hydraulic engineer, and I can not give you an accurate answer to that question. The maximum distance at which we are transmitting power in this country at present, I think, is in the neighborhood of 250 or 300 miles at a voltage of 220,000 in the West. Our lines in the South are all built for 110,000 volts, and it is not economical for us to transmit at any such distances. The actual losses I can not tell you under those conditions.

Mr. REECE. The power, then, from Muscle Shoals could not probably be transmitted economically over a distance greater than 400 or 500 miles?

Mr. SAVILLE. No, sir. That is contained in my statement.

Mr. REECE. Probably not that far?

Mr. SAVILLE. No, sir.

Mr. SPEAKS. I just want to ask: Your consideration of that question and your interest in it is purely local?

Mr. SAVILLE. Solely from the State's standpoint.

Mr. SPEAKS. I understand. That is the only interest that you have in the matter?

Mr. SAVILLE. Yes, sir.

Mr. SPEAKS. And you have discussed it from that standpoint solely?

Mr. SAVILLE. Yes, sir.

Mr. SPEAKS. You realize, of course, this committee is sitting as the representatives of all the people of the United States and are attempting to do something in protection of their interests?

Mr. SAVILLE. Yes, sir.

Mr. WAINWRIGHT. Viewing his purely as a water-power project and apart from the consideration of the manufacture of fertilizer, you consider it would be objectionable, from your standpoint, to turn it over to an individual? Now, my question is, If it is objectionable to turn it over to an individual, why is it not as objectionable to turn it over to a corporation?

Mr. SAVILLE. I would not consider it objectionable to turn it over to an individual if that individual were already engaged in the power business and were hooked up to this Southeastern network.

Mr. WAINWRIGHT. What I am really coming to is: Viewing it as a source of primary power, where would the real fundamental objection be to turn it over to nobody, but for the Government to develop it itself?

Mr. SAVILLE. I have stated there was no objection to doing that, but it could not be done quite as economically.

Mr. WAINWRIGHT. Why not?

Mr. SAVILLE. Because the Government has never been engaged in the power business.

Mr. WAINWRIGHT. Now the Government has on the Ohio River and wherever it has locks and dams, power developments that are operated by the Government?

Mr. SAVILLE. Yes, sir, but very little power.

Mr. WAINWRIGHT. But there is power at some points?

Mr. SAVILLE. But in very small amounts.

Mr. WAINWRIGHT. Is it not a fact that the Government at some points in the improvement of great rivers has developed power—that the Government is developing power to some extent?

Mr. SVILLE. I am not informed on that point. I do not know whether they have developed public utility power. I question it, though, to any extent.

Mr. WAINWRIGHT. Then the only objection you have to developing it as a primary source of power, without reference to distribution, by the Government, is the economical feature?

Mr. SAVILLE. The economic feature. I am opposed to Government ownership.

Mr. WAINWRIGHT. Have you ever analyzed it from the basis, in contrasting the experience between the Government and private interests, as to where the difference would be?

Mr. SAVILLE. No, sir: that is merely my opinion.

Mr. WAINWRIGHT. I am interested in that, because there is great interest in my State at the present time, as you know, in the developing and building of water power.

Mr. SAVILLE. From what State do you come?

Mr. WAINWRIGHT. New York.

Mr. SAVILLE. Oh, yes.

Mr. WAINWRIGHT. And it is one of the great questions there, whether the water power of New York should be developed as a primary power—the

construction of the dams and the original furnishing of the power—by the State or by private interests.

Mr. SAVILLE. I think that not only is it less economical, but I think, also, it would bring the matter into politics which would be, of course, undesirable from the standpoint of the State even more than in the case of the Federal Government.

Mr. WAINWRIGHT. My question does not indicate at all that I have any particular opinion one way or the other on it. I am simply seeking for light.

Mr. SAVILLE. Yes, sir.

Mr. WAINWRIGHT. But it seems to me it is a consideration which you should have taken into account as a matter of general principle, and I wanted to know what your view was.

Mr. SAVILLE. I have gone very thoroughly into the power situation in Ontario, which is essentially Government ownership.

Mr. WAINWRIGHT. In other words, assuming the Government makes the initial expenditure to build this dam, as it undoubtedly will—it already has expended most of the money required—notwithstanding it has made the investment, which, as a rule, is the objection from the Government standpoint, and owns it and has it practically ready to furnish the power, it would be advisable in your judgment to turn it over to a corporation?

Mr. SAVILLE. A corporation which is already existent or corporations which are already existent in that locality.

Mr. QUIN. Professor, have you endeavored to visualize this proposition from a national standpoint?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. Well, what do you think of that as compared to your local or provincial idea expressed here?

Mr. SAVILLE. Well, sir, I think that the principal part of the Nation's benefit from this development, no matter for what it is developed, is the southern portion of the country.

Mr. QUIN. What makes you reach that conclusion?

Mr. SAVILLE. Well, sir, the amount of power to be devoted to the manufacture of fertilizer under the various bills is rather a small amount of the total power. The remaining power, the secondary power, is presumably to be devoted either to manufacturing developments or to public utilities.

Mr. QUIN. Your State is largely engaged in the manufacture of fertilizer, is it not?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. There are a good many fertilizer concerns?

Mr. SAVILLE. There are a number of fertilizer concerns there.

Mr. QUIN. If it is such a small matter to the fertilizer interests of this Republic, why is it that the fertilizer trusts have been so congenitively active in opposing this Ford proposition. [Laughter.]

Mr. SAVILLE. Well, sir, I do not pretend to know anything about the fertilizer question, and am not prepared to argue it, because I do not know anything about it.

Mr. QUIN. You can not recognize, then, what Mr. Ford's proposal, as set out in this bill, means to the fertilizer interests of the United States in bringing down the price of fertilizer to put on the soil, to produce food and raiment, for the people, can you?

Mr. SAVILLE. Yes, sir; I can visualize that very readily.

Mr. QUIN. Have you read the hearings which were held in 1922?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. If this proposition is carried to its ultimate conclusion, just from that one angle, and fertilizer is reduced to one-half of the present price to the farmer, do you think that is the cause of this activity on the part of the Fertilizer Trust?

Mr. SAVILLE. Well, sir, I do not know anything about the Fertilizer Trust; I do not know them or their officers.

Mr. QUIN. You did not read that in the hearings?

Mr. SAVILLE. Oh, yes, sir; I read it.

Mr. QUIN. Do you not think they were a little bit hostile?

Mr. SAVILLE. Possibly so.

Mr. QUIN. Another thing: In reading that, you are bound to conclude that the power trusts were hostile to the Ford proposition, are you not—these organizations and this aggregation of allies that appeared before this committee?

Mr. SAVILLE. Yes, inasmuch as they desired a site for themselves.

Mr. QUIN. Well, why would they have been so hostile to this national project, interesting 48 States of this Union? It was purely for selfish reasons, was it not?

Mr. SAVILLE. Well, sir, I am unable to say. From my point of view they may very well have been actuated by altruistic motives. I presume they were not, but the result is as beneficial as if they were.

Mr. QUIN. Yes, sir, they were [laughter]; it was altruistic to keep that project from going to the benefit of the masses of the people. That is their altruism, as I observed it. Now, then, you said that North Carolina had the primary interest in this water project down there, did you not?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. And you based that on the reason that some of the streams that wind in to form the Tennessee River have their source in North Carolina, or run through the State of North Carolina; that is what you base that on?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. Now, the people of North Carolina, or those who come in there to take up that water power, have already dammed it and taken all they could along the way, have they not?

Mr. SAVILLE. Oh, no.

Mr. QUIN. There is a great deal of undeveloped water power in North Carolina yet; that is what I saw when I was through there. It has been 10 years since I was through there, but that is what I saw.

Mr. SAVILLE. No, sir; there has been a good deal of development since you were there.

Mr. QUIN. There is a good deal there yet, is there not?

Mr. SAVILLE. There is a good deal there yet, but it is not all susceptible of economic development at the present time.

Mr. QUIN. Then you would not think these people, outside of North Carolina, in the States where those streams do not originate or cross, would have the same interest in it that the people of North Carolina would; is that your idea about it?

Mr. SAVILLE. I presume they would not.

Mr. QUIN. Do you not know those clouds form way up here, and the winds carry them from away up here all across to Mississippi, and make these waterfalls down there?

Mr. SAVILLE. No, sir; on the contrary, the winds blow the other way.

Mr. QUIN. The winds blow it down there, do they not? [Laughter.]

Mr. SAVILLE. Yes, sir.

Mr. QUIN. I want to say that this very committee caused that dam to be built down there. Do you know what were the two primary objects in the construction of that dam across the Tennessee River at Muscle Shoals in the contemplated project?

Mr. SAVILLE. I believe I do.

Mr. QUIN. What are those two primary objects?

Mr. SAVILLE. The original primary objects were the production of nitrogen, and navigation, as I understand it, as war measures.

Mr. QUIN. Well, you have left off part of it. That is just in war times, and we have war but very little, and I hope we never will have it any more.

Mr. SAVILLE. But that was it originally.

Mr. QUIN. What was the object in all those years in time of peace, that actuated the United States Congress in putting that money down there?

Mr. SAVILLE. I was not aware the United States Congress was putting any money there prior to the war.

Mr. QUIN. I am referring to the object of building and constructing, it is practically built—what was the other object of it?

Mr. SAVILLE. I have stated the original object, so far as I am aware.

Mr. QUIN. Well, they were two and the same; they are twain, if you are familiar with this business.

Mr. SAVILLE. Yes.

Mr. QUIN. It is for the manufacture of fertilizers in time of peace. Are you aware of that fact?

Mr. SAVILLE. That is since the war that has been one of the considerations before the committee, I believe.

Mr. QUIN. That was in the beginning; that is the object that actuated this committee as one of the main objects in putting this money out. Those are the two principal objects. Do you know in the Ford proposal, that navigation question you mentioned, that the ultimate aim of it is to make the Tennessee River navigable on up into Ohio and into that country?

Mr. SAVILLE. I do not find that stated in the bill as an ultimate object.

Mr. QUIN. I am speaking of the hearings; what he proposed to do?

Mr. SAVILLE. Yes.

Mr. QUIN. That is proposed to be done, is it not?

Mr. SAVILLE. I do not think it will make any difference whether he proposes it or not; the Government will see that it is done, whoever develops Muscle Shoals.

Mr. QUIN. It is not going to be done with the construction of this one dam?

Mr. SAVILLE. No.

Mr. QUIN. It must be done with the construction of the second dam?

Mr. SAVILLE. Yes.

Mr. QUIN. Now, Professor, you stated that you wanted it to be in the contract about the transmission of the power for the farmer. What are the farmers going to get out of this power business, without any fertilizer?

Mr. SAVILLE. It seems to me the farmers stand to get a good deal out of it. They stand to get power on their farms, which will give them the conveniences of light, water, and power for their farm operations; it will save them labor.

Mr. QUIN. What would they want that power for?

Mr. SAVILLE. Light, water, and power, the power to do things which make living more convenient, such as washing machines and running silage cutters and so on.

Mr. QUIN. Do you know the most economical light concerns for the farmer is one of these Delco power concerns, to light his house, his barn, and all up the lanes?

Mr. SAVILLE. No, sir; not a big farmer.

Mr. QUIN. Oh, yes; I am acquainted with the big farmers, and the little farmers, and that type of plant is much cheaper than you specified here. And, now, about operating a washing machine—did you ever farm any?

Mr. SAVILLE. No, sir.

Mr. QUIN. Do you know how they wash clothes? [Laughter.]

Mr. SAVILLE. Yes, sir.

Mr. QUIN. Well, do you not know that the farmer, if he wanted to wash clothes, he would not go and hire any electric light company to wash them? [Laughter.]

Mr. SAVILLE. I know the farmers are among the largest users of washing machines to-day.

Mr. QUIN. Yes, sir; and don't you know, if he wanted real cheap power, he would get a little cheap automatic gasoline engine?

Mr. SAVILLE. That has not been so in the West; it is the reverse of what you say there.

Mr. QUIN. Why, a little automatic gasoline engine will run the pump, the washing machines, light their houses and their barns and their yards, at a very cheap cost. Do you not think what the farmer is interested in is to get cheap fertilizer to put on that ground so as to get a crop for his labors.

Mr. SAVILLE. I think he is interested in both.

Mr. QUIN. What are all these farmers, who live 400 and 500 miles away from Muscle Shoals, going to do? They would not go and hire this electric light company to send power over to them to wash clothes?

Mr. SAVILLE. No, sir; and they will have to pay freight on the fertilizer, too. Moreover, they will in effect get Muscle Shoals power to help them work their farms.

Mr. QUIN. Did you ever stop to think one of the propositions submitted here in this Ford proposal, was that it is going to cut out the expense of freight to a large extent by the concentration process of fertilizer?

Mr. SAVILLE. Yes sir. But North Carolina is a long ways from Muscle Shoals.

Mr. QUIN. Oh, yes, and Mississippi is a long ways, and Kansas and Iowa are a long ways from there. We are talking now and trying to visualize the thing for the benefit of all the people. You stated you thought these power companies—have you read the proposal they have submitted here?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. Their joint proposal?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. They propose to put up a corporation of $5,000,000, do they not, as a subsidiary, without saying how much of that is to be paid in? Are your familiar with that?

Mr. SAVILLE. I do not remember, offhand, the particular arrangements.

Mr. QUIN. Do you know that every State in this Union prescribes in the charter the powers of the corporations to which that charter is granted?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. What it can do?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. Under this proposal two or three of these concerns have just come out of the bars of receivership, have they not, and do you think that the people of the United States would be safe in considering a proposal from a corporation which was ultra vires of the charter rights of the signers?

Mr. SAVILLE If they come under——

Mr. QUIN. To consider a proposal of a corporation of that kind to put up $5,000,000, and then, under that proposal, that $5,000,000 could be merely old junk. Some fellow, with his experience and his patents would say, "I put in my experience and patent for $200,000;" another one would say, "I put in my wisdom and experience for $200,000;" another one would say, "I put in this patent for $100,000;" and so on, and they would wind up with about one-fiftieth of the thing being paid in in money. Do you think this committee would have much respect from the people of the United States if it were to accept such a proposal as that?

Mr. SAVILLE. I think if the proposal were made to put this project under the Federal power law no such consideration would arise.

Mr. QUIN. And if the fertilizer end of it failed then the parent corporations would say, "We did not authorize and our directors did not have the power to go into that hazardous business, to wreck the assets of this concern, involving all the bonds and the money of the stockholders," and you can conceive what the courts would say. Where would this committee then be—no fertilizer for the farmers of the country, and this power turned over and gone? What do you think, now, the people of the country would think of us?

Mr. SAVILLE. I have stated already if the proposal was put under the Federal power law, as contemplated in the law, I see no criticism.

Mr. QUIN. The Federal power law would not make them make fertilizer, would it?

Mr. SAVILLE. No, sir.

Mr. QUIN. The fertilizer, you understand, in time of peace, that is the main thing, to guard it? You understand that is the mud still on which we are working.

Mr. SAVILLE. The Federal power law can affect their financial arrangements and control them.

Mr. QUIN. How could it affect them when they would not have the power to do it under their charter rights?

Mr. SAVILLE. Under their charter rights they are under the Federal power law, so far as the financing is concerned.

Mr. QUIN. Do you mean the financing a separate and distinct business beyond that which their charters permit them to do?

Mr. SAVILLE. I mean separate and distinct, so far as Muscle Shoals is concerned.

Mr. QUIN. Do you mean a corporation, a bank, organized for the purpose of receiving deposits and carrying on the banking business, can out with a subsidiary corporation, separate and distinct from that contemplated in the scope of the charter, and bind the assets of the stockholders of the bank?

Mr. SAVILLE. I am not prepared to argue legal points; I do not know.

Mr. QUIN. You come in with a flourish of trumpets, saying what this company is going to do, and I am trying to show you the pitfalls on the way, and in the interests of the American people and not in the selfish interests of any of the States. Another point, on the navigation: You put that as one of the two objects?

Mr. SAVILLE. Of the two original objects.

Mr. QUIN. The two original objects—navigation and this other war business, which we won't have, maybe, for 50 or 100 years—I hope we wont.

Mr. WAINWRIGHT. We may.

Mr. QUIN. And then, under this Alabama Power proposition, you have not any navigation proposed, have you?

Mr. SAVILLE. As I understand the bill, they agree to maintain and construct locks for navigation purposes, equal with the Ford proposal.

Mr. QUIN. But you have to have other dams to have that river open, possibly to have navigation clear up the Ohio River.

Mr. SAVILLE. They agree, as I understand, to build and operate locks on both Dam No. 2 and Dam No. 3; and, as I understand, that is as much as Mr. Ford does, also.

Mr. QUIN. You are mistaken about that. If you will read the hearings here, the representative of Mr. Ford stated what he ultimately proposed to do.

Mr. SAVILLE. Proposed to do, but not in the bill.

Mr. QUINN. Then, Professor, according to your conception of the proper thing for the Committee to do, it would be to turn this power over to the power trust, to sell and distribute the power locally there, as far as it was economical to do? Is that what I understand you to recommend?

Mr. SAVILLE. My recommendation is that the power be sold or leased to the associate power companies in the Southeastern States under the regulation of those States.

Mr. QUIN. How is it that you differ with all of the Congressmen from North Carolina? They are wanting this Ford proposition accepted by Congress.

Mr. SAVILLE. I think that you are incorrect.

Mr. QUIN. All I know is what they have stated to us in the last two years.

Mr. SAVILLE. I asked my Congressman, this morning, who represents the third largest district of the whole United States, if he had committed himself one way or the other, and he informed me he had not formed any judgment.

Mr. QUIN. When did he come to Congress?

Mr. SAVILLE. He came to Congress before I was born.

Mr. QUIN. He was here before you were born?

Mr. SAVILLE. Yes, sir.

Mr. QUIN. Who is he?

Mr. SAVILLE. Major Steadman.

Mr. QUIN. You mean he was born before you. He did not come to Congress before you were born.

Mr. SAVILLE. I think he came very nearly before I was born.

Mr. QUIN. He came here 12 or 13 years ago, about the time I did, and that is not before you were born. [Laughter.] Professor, aside from those local States, what States are interested in that power, do you think?

Mr. SAVILLE. The States all around that region are interested in the power situation, just as much as the southeastern States.

Mr. QUIN. What is Mr. Duke's interest in your State?

Mr. SAVILLE. Mr. Duke is not one of the underwriters of this proposition, as I understand.

Mr. QUIN. What is his business?

Mr. SAVILLE. Mr. Duke is connected with one of the power companies and has a tobacco company, I think.

Mr. QUIN. Is he not connected with the chemical fertilizer company of North Carolina?

Mr. SAVILLE. You mean some big fertilizer company?

Mr. QUIN. Yes.

Mr. SAVILLE. I do not know, but he is not notorious in that respect.

Mr. QUIN. You do not think he is one of the officers of that?

Mr. SAVILLE. I do not know whether he is or not.

Mr. WRIGHT. You are dealing with this proposition solely from the water-power standpoint?

Mr. SAVILLE. Yes, sir; solely from the water-power standpoint, I would say.

Mr. WRIGHT. Hydroelectric power?

Mr. SAVILLE. Yes, sir.

Mr. WRIGHT. Mr. Duke is a very considerable man down there in North Carolina, is he not?

Mr. SAVILLE. Why, Mr. Duke has very little to do with anything in North Carolina, other than the operation of his power company and the operation of his tobacco companies. I mean that he plays no part in any other activities that I am aware of.

Mr. WRIGHT. What has been the development in North Carolina in the last two years, of water power?

Mr. SAVILLE. You mean the number of horsepower installed?

Mr. WRIGHT. How much has it been increased in two years?

Mr. SAVILLE. About 98,000 horsepower.

Mr. WRIGHT. That has been added in two years, approximately?

Mr. SAVILLE. Offhand, I would say that much.

Mr. WRIGHT. Are you familiar with a letter that Mr. J. B. Duke wrote the Chief of Engineers of the United States Army under date of June 24, 1921?

Mr. SAVILLE. No, sir, I have not seen that.

Mr. WRIGHT. I will call your attention to some paragraphs in that letter:

"The power companies of the South cannot take power from the Wilson Dam at a 100 per cent load factor, for they have plants which can furnish all the power they need for this part of the load. Under the plan proposed to the Government for Muscle Shoals power distribution the power companies of the South would have to shut down a part of their power equipment in order to use the 100 per cent of the primary power from Muscle Shoals. This they can not afford to do.

"So far as the Southern Power Co. is concerned, the cost of transmission from Muscle Shoals to the Southern Power Co.'s market is prohibitive. Not less than 420 miles of transmission line would be required. The capital investment involved would exceed $20,000,000. Transmission cost based on so large an investment is more than the traffic would bear. As a matter of fact, for $20,000,000 the Southern Power Co. can develop in its territory more hydroelectric power of its own than could be transmitted over the proposed transmission lines. Furthermore, if the Government will, at its own expense, construct transmission lines from North Carolina to Muscle Shoals the Southern Power Co., after investing $20,000,000 in new hydroelectric plants in this territory in North Carolina, will sell to the Government at the North Carolina end of such transmission lines primary power at 3 mills per kilowatt-hour on the 100 per cent load factor proposed by the Government, instead of at the four and four-tenths mills charge proposed by the Government for primary power at the Wilson Dam.

"The market for power from the Muscle Shoals dam has, in my opinion, been overestimated. The demand for power in this district during the war has materially decreased. Some companies have an excess supply. The shortage in any one company or in all combined, including those which, like the Southern Power Co., are too far away to take from Muscle Shoals, is less than the primary output of the Shoals and is likely to remain so for some years. One reason for this overestimate is that the Government's consulting engineer has counted on supplying most of the steam power within electric transmission distance. In practice all steam power can not be replaced by hydroelectric. There are many isolated cases where the cost of transmission is so great that steam power remains cheaper even though generated by an inefficient plant."

You are not familiar with that?

Mr. SAVILLE. I am not familiar with the letter, no, sir, but I can answer the statements.

Mr. WRIGHT. All right.

Mr. SAVILLE. In the first place, the first statement is that the power companies could not afford to shut down their plants to use the primary power of Muscle Shoals. Of course, our State is not interested in primary power at Muscle Shoals. There is only 100,000 horsepower of primary power, or less, and some 500,000 horsepower secondary power. It is that secondary power we are interested in, as I attempted to bring out in my testimony. I think that is disposed of in my testimony.

As to the matter of direct transmission, I also made the statement in my testimony, agreeing with the statement Mr. Duke made, that it was not possible economically to transmit that power directly for 400 or 500 miles. That is not the proposal under consideration at the present time, as I understand it. The power is merely relayed; it is not transmitted directly from Muscle Shoals to North Carolina.

As to his being able to deliver power at 3 mills at the North Carolina end of that transmission line: In a statement of Mr. Lee, the Chief Engineer of the Southern Power Co., before the North Carolina Corporation Commission, two or three months ago, relative to rate increases, he stated that his firm at present was buying power from the Aluminum Company of America, I think, at 5 mills; that he would be very glad to renew that contract, but that he could not do it; that he would be glad to buy power at 5 mills in the future, after 1927.

As to the decrease of power output in this region: I have a chart here, based upon the statistics of the United States Geological Survey, showing output in kilowatt hours of the municipal power of public utility companies in the country. This chart indicates up to 1923—that is, through the year just past—the output in kilowatt hours of the various electric generating stations in the Southern States. The heavy black line represents North Carolina. You will

notice that the output did decrease materially during the depression of 1921; but after that it very rapidly increased, and, at the present time, it has gone away up here, the increase during the past year being greater than at any previous time [indicating].

I will indicate, for the benefit of the committee, this dotted line here was an estimate which I prepared in 1920 to attempt to forecast the growth of power use in North Carolina. This represents 10 per cent per year increase in output. You will see the actual output fell below the line in 1921. It exactly met that line in 1922, and in 1923 it has gone away above it.

The other Southern States, similarly, all of them, have shown a rapid increase in the rate of consumption of electric energy since 1921. There was a decrease in that year. It is evident, therefore, that Mr. Duke's statements as to use of primary power and impracticability of 400-mile transmission are true, but irrelevant to the present discussion. His statements as to costs of power and capacity of the Southeastern States to absorb power may have been applicable in the single year 1921, but not for any year since.

Mr. HILL of Alabama. Did you ever read the Federal water power act?

Mr. SAVILLE. Yes, sir.

Mr. HILL of Alabama. When?

Mr. SAVILLE. Well, I can not give you the date. I have read it several times within the past year.

Mr. HILL of Alabama. Several times within the last year?

Mr. SAVILLE. Yes, sir.

Mr. HILL of Alabama. Have you read it within the last three months?

Mr. SAVILLE. I am not sure I have read it through within the last three months.

Mr. HILL of Alabama. That is what I mean, whether you have read it through within the last three months. You do not know whether you have or not?

Mr. SAVILLE. I am not certain.

Mr. HILL of Alabama. You can not remember when you did read through the Federal water power act?

Mr. SAVILLE. No, sir.

Mr. HILL of Alabama. Did you ever read the Alabama Public Utilities act?

Mr. SAVILLE. No, sir.

Mr. HILL of Alabama. You never have read that?

Mr. SAVILLE. No, sir.

Mr. HILL of Alabama. You do not know anything about that, do you?

Mr. SAVILLE. No, sir.

Mr. HILL of Alabama. You can not tell this committee whether Mr. Ford if he sold power, would come under the regulations of that act, or not?

Mr. SAVILLE. Only if it were like similar acts in other States.

Mr. HILL of Alabama. You can not say whether he would, or not?

Mr. SAVILLE. Not definitely.

Mr. HILL of Alabama. You do not know anything about the Alabama Public Utilities Act?

Mr. SAVILLE. No, sir.

Mr. HILL of Alabama. Whether its regulations would apply to Mr. Ford, or not?

Mr. SAVILLE. Not of my own knowledge.

Mr. HILL of Alabama. For all you know, he might come under the regulations of that act, just the same as any other corporation, if he sold power. Now, your statement here would have been just as true two years from now as it is to-day, the sum and substance effect of it? Would not your statement be true two years ago, the same as it is to-day?

Mr. SAVILLE. You ask me two years ago or two years from now—which?

Mr. HILL of Alabama. Two years ago; two years past. The sum and substance of it—did you not have the same feeling two years ago that you have to-day?

Mr. SAVILLE. Well, sir; I had not formulated my opinion two years ago, so I can not say.

Mr. HILL of Alabama. The facts in your statement, however, would substantially apply the same two years ago as to-day, would they not?

Mr. SAVILLE. No.

Mr. HILL of Alabama. In other words, practically the same reasons, for not wanting that power to be used for that industrial development around Muscle Shoals, would apply the same two years ago, as it does now?

Mr. SAVILLE. Not necessarily, because, as I have just pointed out, the consumption of power in North Carilina, in 1921, had materially decreased.

Mr. HILL of Alabama. This is 1924.

Mr. SAVILLE. If you go to January, 1922, I could not have told you, because the statistics then were only available for 1921, two years ago, so I could not have told you what the trend would be to-day.

Mr. HILL of Alabama. If you had looked into that thing at that time, would you not really have felt about it as you do now, that that power should not simply be used to develop industry around Muscle Shoals?

Mr. SAVILLE. So far as that is concerned, yes.

Mr. HILL of Alabama. You would have felt that way about it?

Mr. SAVILLE. Yes, sir.

Mr. HILL of Alabama. Now, let us get right down to brass tacks; let us get at the milk in the coconut: Two years ago the Alabama Power Co. bid for that proposition, and their idea was that if they could get it, they would use it themselves. To-day, however, they have taken in this superpower system, under which the power companies in North Carolina expect to benefit. Is not the milk in the coconut that two years ago, when the power companies of North Carolina did not expect to benefit, this bugaboo about the power development around Muscle Shoals never entered into it, did it?

Mr. SAVILLE. Will you allow me to answer the question?

Mr. HILL of Alabama. Surely, I want you to answer it.

Mr. SAVILLE. Two years ago, in the fall of 1921, occurred the most outstanding case of power transfer in the history of the United States when there has been a transfer of power from the Alabama power plants into North Carolina. We were in terrib'e straits in the fall of 1921 on account of drought, and at that time the Alabama Power Co. was able to ship power in there and save our industries.

Mr. HILL of Alabama. They saved your industries in 1921?

Mr. SAVILLE. Yes, sir.

Mr. HILL of Alabama. But at that time, two years ago, the power companies of North Carolina had not considered this superpower proposition, had they?

Mr. SAVILLE. The power companies were all interconnected, the same as they are to-day.

Mr. HILL of Alabama. They were not all writing letters and joining hands in submitting bids as they do now? That is true, is it not?

Mr. SAVILLE. I am not aware of that.

Mr. HILL of Alabama. You know that is the situation now?

Mr. SAVILLE. Yes, sir.

Mr. HILL of Alabama. You know that two years ago the Alabama Power Co., by itself, for its own account, submitted a bid here for Muscle Shoals?

Mr. SAVILLE. Yes.

Mr. HILL of Alabama. And now nine power companies, all of the power companies of the South, have joined together in the proposition?

Mr. SAVILLE. Yes.

Mr. HILL of Alabama. Now, is not the milk in the cocoanut the fact that two years ago, when only the Alabama Power Co. was going to do it, they were not concerned about the industrial development being erected at Muscle Shoals; but now, when they think they are going to benefit by it, they come in and raise this bugaboo about the industrial development being centered at Muscle Shoals?

Mr. SAVILLE. No, sir; I am not——

Mr. HILL of Alabama. You are not prepared to say?

Mr. SAVILLE. I would like to answer your question. I am not concerned with what the power companies are arguing as to the industrial development; I have presented my own point of view.

Mr. HILL of Alabama. You presented your own point of view?

Mr. SAVILLE. Yes.

Mr. HILL of Alabama. Have you just woke up to the fact it was your duty, as a citizen, to come up here and testify?

Mr. SAVILLE. No, sir; I had been considering coming.

Mr. HILL of Alabama. Did somebody suggest it to you?

Mr. SAVILLE. Yes, sir; the vice president of one of the power companies in the State, whom I had not seen for six months and with whom I had never discussed Muscle Shoals, called me up and asked my views on the subject. When I stated them, he requested me to appear before the committee. I then

discussed this matter with the president of the university, who thought, in view of my study of the situation, it might be well for me to testify.

Mr. HILL of Alabama. The president of the university?

Mr. SAVILLE. Yes, sir.

Mr. HILL of Alabama. Do you know whether anybody suggested to him that you come?

Mr. SAVILLE. Yes.

Mr. HILL of Alabama. Would you mind stating it to this committee who suggested it to him?

Mr. SAVILLE. I think it was the president of one of the power companies.

Mr. HILL of Alabama. The president of one of the power companies suggested it to him?

Mr. SAVILLE. Yes, sir.

Mr. HILL of Alabama. So you really come here at the request and on the suggestion of one of the power companies of the State of North Carolina, do you not—one of these power companies who is going to benefit by this super-power system down there?

Mr. SAVILLE. Indirectly; yes.

Mr. HILL of Alabama. Indirectly?

Mr. SAVILLE. Yes.

Mr. HILL of Alabama. So really you come here for the power company and not for yourself?

Mr. SAVILLE. No, sir; absolutely not.

Mr. HILL of Alabama. In other words, if that suggestion had not come to you, you never would have been before this committee to-day, would you?

Mr. SAVILLE. If it had come to me from any other source, I would have come.

Mr. HILL of Alabama. You would have come had it come to you from any other source?

Mr. SAVILLE. Yes; from any other source.

Mr. HILL of Alabama. Are you sure of that? Are you sure if a shoemaker on the street in your home town had said, "Look here, Professor, I wish you would go up and testify before the committee on the Muscle Shoals proposition"—do you think you would?

Mr. SAVILLE. I do not know. If I had been made to believe from any source that my testimony would have been of value before this committee, I would have come and my testimony would not have been changed from what it has been to-day.

Mr. MCKENZIE. We are very much obliged to you, Professor.

STATEMENT OF DR. STEWART J. LLOYD, STATE UNIVERSITY OF ALABAMA.

Mr. MCKENZIE. You may proceed with the statement you wish to make.

Dr. LLOYD. I have no written statement, but I shall try and cover what I want to say in as short a time as possible. I might preface my remarks by saying that I am here at the suggestion of Mr. Martin, the president of the Alabama Power Co.; that I expect my expenses for this trip to be paid by the Alabama Power Co.; that I have been associated with that company, pleasantly, off and on, for several years. I mention that at the start so that no one will misconceive my position.

Mr. MCKENZIE. There is no criticism of that, I think, Doctor.

Mr. SPEAKS. I think it is a very wise statement.

Dr. LLOYD. My instructions from Mr. Martin were not explicit, but I judged he desired me to discuss before this committee more particularly the question of calcium arsenate.

Mr. REECE. However, what you have to say here are your views and not the views of anyone else?

Dr. LLOYD. Oh, yes; decidedly.

Mr. WAINWRIGHT. Might the witness qualify himself a little. I confess I have never heard of the gentleman before.

Mr. HILL of Alabama. Tell us what your official connection is.

Dr. LLOYD. My official position is professor of chemistry and metallurgy, the State University of Alabama. I am also one of the associate State geologists at that institution, and my academic education so far as that goes, was received at the University of Toronto, Canada; the McGill University, Canada, and at the University of Chicago. I have done a good deal of geological work, and chemical work outside, for a number of people.

Now the connection, as I see it, of this calcium arsenate matter with the whole Muscle Shoals situation, is that, in the last few years, the question of saving the cotton crop, so far as the southeast is concerned, the question of securing the cotton after it is partly made, has become at least of equal importance with that of making it to begin with; that is, the question of protecting against insect pests by means of calcium arsenate is beginning to be almost as important, if not quite as important, as the question of raising the crop by means of fertilizer. So that since one of the primary objects of building the dam at Muscle Shoals and the Nitrate plant was the manufacture of fertilizer, why I think it is reasonable to believe that one of the useful purposes that project could serve is the manufacture of something that could save the cotton crop after it has been partially made.

Hitherto, calcium arsenate, as such, has been in use only for four or five years. It was really first heard of on any scale in about 1919 and at that time some five hundred or a thousand tons, I think, were used in the South. Since that time its production and use has been growing pretty steadily. The curve of production, if you follow it up, runs pretty sharply until in this last year, 1923, they have produced about 16,000 tons of this calcium arsenate.

Now there is only one raw material at present for making calcium arsenate, and that is a substance known as white arsenate, which is produced, not entirely but almost so, from waste at the large smelters and, since the cost is largely a matter of bookkeeping (it is a by-product which the State laws force them to recover so that it may not become a nuisance to anybody), just because the cost is a matter of bookkeeping, so far, they have largely charged what the traffic would bear. The price has vacillated, risen and fallen, very materially, from year to year, so that the price of calcium arsenate, which is produced from it, has also changed very rapidly, and the man who uses it never knows what will be the cost next month.

This calcium arsenate situation attracted our attention a little over a year ago, that of myself and Mr. Kennedy, a colleague of mine, when we began to do some work for the Alabama Power Co. When they began to go into the electrification of industries through all their territory, one of the questions which arose was how to use their secondary power, their off-peak power. The old method of manufacturing calcium arsenate consisted of putting the raw material into suitable vessels and treating it with nitric acid, to put it into a form suitable for turning subsequently into calcium arsenate. Mr. Kennedy and I experimented on that material, thinking possibly we could work out a suitable but then unknown method whereby electric current could be used and thereby afford a market for some of the secondary power and, incidentally, to cut the cost of making calcium arsenate by about 2½ to 3 cents a pound. This experimental work was carried on wholly at the expense of the Alabama Power Co. at Anniston, at the University of Alabama, and at Schenectady, N. Y.

There is one other thing that links up this calcium arsenate production with the general fertilizer question, and that is, in the manufacture of calcium arsenate by this new method there is produced, incidentally and inevitably, quite a considerable amount of hydrogen. I understand that some of the gentlemen who have been testifying before your committee have been dealing a little bit with the technical side of ammonia of nitrate manufacture, and you are probably familiar with the fact that the cost of hydrogen determines very closely the cost of making nitrate of ammonia. We expect after this calcium arsenate work has reached its proper magnitude to use this by-product hydrogen for the manufacture of ammonia and thereby again reduce quite materially the cost of ammonia for making ammonium sulphate, or other fertilizer material, and thereby to cut the ultimate cost of the complete fertilizer.

There is one other point in connection with this I would like to speak of besides the substitution of electric power for nitric acid in the manufacture of calcium arsenate, which will, as I say, cut the cost to about 2½ cents a pound. The really troublesome factor, however, in this whole calcium arsenate production, is the supply of white arsenic, and we are now attempting to revise and have worked out a successful scheme for an electric furnace for the manufacture of this raw material, white arsenic, in which we use local ores, local arsenic material, which occurs in considerable amount down in Alabama, from the deposits about which Mr. Hill probably knows, in Tallapoosa and Randolph Counties, where there are considerable quantities not hitherto available on account of the cost of manufacture.

Mr. GARRETT. Doctor, would it interfere with your statement there if you would compare the price at which calcium arsenate is selling to-day as compared with four years ago, or three years ago?

Dr. LLOYD. I am not sufficiently familiar with the cost three years ago. It is selling to-day. I think, at 13 cents, or at from 11 to 12 cents. Its price has varied; the lowest price, in quantity, at which I know of its being sold in Georgia, being 10 cents.

Mr. GARRETT. Within three years?

Dr. LLOYD. A year or so ago, when they desired to dispose of a quantity.

Mr. GARRETT. The reason I ask that, I heard one of our large cotton growers in Texas say when they began to use calcium arsenate in large quantities it had gotten into the hands of a few people, and they had put the price up to where it was now almost prohibitive and it was not being used there, and I was just wondering if you were familiar with the situation. I am very much interested in your statement.

Dr. LLOYD. There is no question about what you say as to the practice with calcium arsenate. In the past the price has gone up and down to a ridiculous extent. The farmers around my own home town in Alabama, some of them, paid as high as 22 cents a pound for it last year, because they had to get it for an emergency. The Army worm was upon us and they were simply robbed. Now, I would be very glad, if anyone desires to ask any questions about this, to endeavor to answer them, because I hardly know where to start and where to stop in the matter.

Mr. WRIGHT. Doctor, what are the elements that enter into the manufacture of calcium arsenate?

Dr. LLOYD. Practically only this white arsenic and lime.

Mr. WRIGHT. Where is the white arsenic obtainable?

Dr. LLOYD. The only place from which we get any large supply at present are the large smelters in the West, the American Smelting & Refining Co., the United States Co., and the Anaconda Co.; and, as it is a by-product to them, as the cost of obtaining it to them is more or less a matter of bookkeeping, they seem to be very skillfull in getting all the traffic will bear from it.

Mr. WRIGHT. Are there any places in the United States where white arsenic is manufactured as an original proposition—as a primary proposition?

Dr. LLOYD. I think there is at one placed called Toulon, either in Nevada or New Mexico, and it was manufactured at Brinton, Va., I think, during the war, and in Queensland, Australia, and in Japan, and a number of foreign countries.

Mr. WRIGHT. But it is essentially a by-product?

Dr. LLOYD. Yes, sir, it is, and if a stable price for white arsenic could be established, not necessarily a high one, but a stable price, there are a good many gold deposits in this country which carry small amounts of gold and quite an amount of arsenic, and if they had a demand for that, if they had a stable market for white arsenic, I think it would result in the development of it.

Mr. WRIGHT. The lime is very plentiful?

Dr. LLOYD. Yes.

Mr. WRIGHT. So all they would have to provide is the white arsenic?

Dr. LLOYD. The white arsenic, and we expect to get that ultimately from local sources in eastern Alabama.

Mr. WRIGHT. It is an entirely practical proposition to manufacture calcium arsenic at Muscle Shoals?

Dr. LLOYD. Oh, yes, sir; entirely so.

Mr. WRIGHT. And at a greatly reduced price?

Dr. LLOYD. By the new method, an electrolitic method and one by which, very fortunately, we will be able to use the least power at the time of the year when the rivers are low; we can practically use a good deal of some secondary power.

Mr. WRIGHT. The price has advanced very rapidly, has it not, this calcium arsenate?

Dr. LLOYD. It has fluctuated each year; as the demand has fluctuated, the price of the calcium arsenate has fluctuated. The farmers, as you know, are not very provident in buying their supplies at the time of the year when they can get the lowest price, and it ran, last year, anywhere from 13 to 23 cents a pound.

Mr. GARRETT. Is the calcium arsenate used by the tobacco growers? Do they use that, or is that used in the form of a liquid?

Dr. LLOYD. No; it is used in the form of dry powder.

Mr. GARRETT. Like flour?

Dr. LLOYD. Like flour; yes.

Mr. GARRETT. It is not used by the tobacco people, now?

Dr. LLOYD. I do not think so; not to my knowledge.

Mr. GARRETT. They are still using a mixture of Paris green and other things for the destruction of the worm?

Dr. LLOYD. So far as I know. I am not certain on that, Mr. Garrett.

Mr. GARRETT. Well, the thing I was interested in particularly was the question I asked you a moment ago. Now, is this raw material produced in great quantities by the smelters?

Dr. LLOYD. Well, about 16,000 tons, I think, are produced a year in the United States.

Mr. GARRETT. And that is treated by some process with lime, and then it is ready to use on the cotton?

Dr. LLOYD. It has to be treated by the electric current first and then with lime before it is used on the cotton.

Mr. GARRETT. And before it was taken up by the farmers for the destruction of the pests and things of that kind, why they had a pretty hard time; as you say, it is a matter of bookkeeping, and they had a pretty hard job disposing of it, even at practically very nominal figures.

Dr. LLOYD. Quite a bit of it was thrown away.

Mr. GARRETT. That is what I understand from the cotton growers of my State, that they had saved one cotton crop with it and they put the price up when they got ready to save the next one where it was practically prohibitive, and they might just as well let the worm destroy the crop as to pay those people, who manufactured it and had gotten control of it, what they asked, and I can see how easily it could be controlled, as it is a by-product in the hands of a few people.

Mr. HULL. Where can they produce this calcium arsenate at Muscle Shoals?

Dr. LLOYD. Why, the building in which it could be put would not have any particular characteristics. There is no very heavy machinery, so to speak, used in connection with it.

Mr. HULL. Do either one of these present plants for the production of nitrates have anything to do with it?

Dr. LLOYD. Not particularly.

Mr. HULL. Not particularly?

Dr. LLOYD. Except this, that the hydrogen, as a by-product, could be used as a raw material in plant No. 1.

Mr. HULL. In plant No. 1?

Dr. LLOYD. Yes.

Mr. HULL. I do not know whether you care to answer this question, but it is for information solely that I am asking the question. What is the relative merit as to cheapness of production of nitrates of plant No. 1 and plant No. 2, in your opinion?

Dr. LLOYD. Well, if I had to take the two and use my own money and to operate them, I would pick No. 1 immediately.

Mr. HULL. You would take No. 1?

Dr. LLOYD. Yes. Just one other thing: I might say we are now equipping and getting ready for operation a 20-ton plant in Montgomery, to manufacture this calcium arsenate in this new way and expect to have that plant in operation before the beginning of the next cotton season, about May or June. The building we are using and the electrical equipment already in it are the property of the Alabama Power Co.—one of their old steam plants, in fact—and it has been leased to us at a nominal rental for three years. This has enabled us to get into production this year and to cut down overhead costs to some extent.

Mr. GARRETT. Do you handle that independently, yourself, or by the by-products?

Dr. LLOYD. No; we have to buy it.

Mr. GARRETT. You have to buy it?

Dr. LLOYD. But we hope to be independent of them within a couple of years.

Mr. MCKENZIE. We are very much obliged to you, and glad to know the South is progressing along in these lines.

STATEMENT OF MR. W. B. COLE, ROCKINGHAM, N. C.

Mr. COLE. My name is W. B. Cole, from Rockingham, N. C. I am a cotton manufacturer. I represent directly, and indirectly, a little cotton mill town of about 250,000 spindles. We are driving those spindles with power purchased from the Yadkin River Power Co.

Mr. SHERWOOD. What part of North Carolina is this?

Mr. COLE. It is right near Pinehurst, 30 miles south of Pinehurst. We are driving those spindles with power we purchase from the Yadkin River Power Co., one of the big power producers in the South.

I am naturally interested, personally; I am interested on account of my State and my interest in cotton in that section of the South. In the disposition of this Muscle Shoals property, I would like to see it turned over to the power people where we could all profit by it. We are in a position now where we can appreciate the fact that we are hooked up by a line of successive transmission lines with the Muscle Shoals property, for frequently we are able to keep our spindles going by help from some of the other power companies, principally the Alabama Power Co.

Mr. Tillery, president of the Yadkin River Power Co., called me up Saturday and asked me if I would be interested to come up here and appear before the committee. Well, being personally interested, I told him I would be glad to come. I am like Mr. Saville; I would have come if anybody else had suggested it. I did not know the matter was being agitated especially right at this time; I am not much of a reader, but we are vitally interested in it generally.

We would like to see the development at Muscle Shoals turned over to this combination of the power people, so that we could all benefit by that great power development.

I do not want to make any sort of statement which I will have to take back, now [laughter] but as I see it, if it is placed in the hands of the power people, that whole section of the Southern States will be benefited. It will give us power to build up the industrial life of that whole section of the country. If it is put in the hands of a private individual or private corporation, it would be centralized, probably, at one place, and the balance of the South would get no benefit of it, practically. And, for this reason, I have come up and I am glad of the opportunity to meet you gentlemen, to see you, and to hear the discussion.

One difference, as I see it, in turning over this power to the power companies and turning it over to an individual, is if it is turned over to the power companies, the public will utilize that power. The power companies have no use for power other than to sell it, and the laws regulate the price they get for it.

Mr. SHERWOOD. How much power are you using now?

Mr. COLE. Individually?

Mr. SHERWOOD. Yes.

Mr. COLE. In the mill of my own?

Mr. SHERWOOD. Yes.

Mr. COLE. About 3,300 horsepower. I am using 1,800 and have just contracted for 1,500 more.

Mr. SHERWOOD. From where do you get the power?

Mr. COLE. I get it from the Yadkin River Power Co., a local plant.

Mr. SHERWOOD. Is that satisfactory?

Mr. COLE. Very satisfactory; yes, sir. Yes, sir, I would hate very bad to have to go back to the steam plant. We used to operate steam plants.

Mr. WAINWRIGHT. As a citizen, would you rather have this turned over to a company or have the Government develop it and have it as a primary source of power to be distributed?

Mr. COLE. Well, I think it would be handled more satisfactorily with private concerns than with the Government.

Mr. WAINWRIGHT. Take the Panama Canal: The Panama Canal has not cost very much more than this, and yet the Government is operating that. What would you think as to that; would you say that the Panama Canal could be operated more economically and to better advantage by private interests than by the Government, assuming some comparison between these two projects as great public utilities?

Mr. COLE. Well, I think a private corporation can be conducted more economically than the public. I would think that they would have to do it.

Mr. MCKENZIE. Mr. Cole, you are a business man and I am rather pleased with your frank statement. You are here as a citizen of that section of the country, advising us to do the thing you believe will bring the most successful development in that section of the country and tend to enrich and build up that section of the country.

Mr. COLE. I feel that way, sir.

Mr. MCKENZIE. And that a power company would be a better agent to bring that about than either Mr. Ford or the Federal Government?

Mr. COLE. Well, the power companies are all linked up and have their lines in, and I believe they are in a better position to handle it.

Mr. McKENZIE. Your testimony is based solely on that viewpoint, as I understand it?

Mr. COLE. Yes.

Mr. McKENZIE. That the power companies are better equipped to handle this thing for the purpose you have outlined?

Mr. COLE. Yes, sir.

Mr. SPEAKS. During the war, the sole thought and purpose in connection with the development of Muscle Shoals was a national one, was it not?

Mr. COLE. I guess so, yes, sir.

Mr. SPEAKS. I think we will all agree to that.

Mr. COLE. Yes.

Mr. SPEAKS. Do you think this committee should continue our efforts along that line?

Mr. COLE. Well, I think this: I think that more people would be served directly through the arrangement of turning the power over to the power companies than any other way it could be handled. Now, the question of fertilizers—I want to say I am more interested in farms than I am in cotton mills. I do not lay much stress on that, because there are so many "whereases," "whys," "wherefores," and loopholes where a fellow might get out of producing fertilizer, that I "ain't" figuring much on cheap fertilizer. [Laughter.] I do not like a proposition that has got "whereases" in it. [Laughter.]

Mr. SPEAKS. Fertilizer is being manufactured now?

Mr. COLE. Yes, sir.

Mr. McSWAIN. Which proposition has the more "whereases"?

Mr. COLE. I have never read either one of them. [Laughter.]

Mr. JAMES. Then, really, you do not know whether there are any "whereases" in either one of them, do you?

Mr. COLE. No, sir. [Laughter.]

Mr. HILL of Alabama. Mr. Cole, not having read either one of the propositions, your testimony is based largely on what Mr. Tillery, president of the Yadkin River Power Co., has told you about this thing, is it not?

Mr. COLE. It is not, sir.

Mr. HILL of Alabama. It is not?

Mr. COLE. No, sir; it is based on my own conclusion that I have drawn from the situation.

Mr. HILL of Alabama. But never having read either one of the propositions?

Mr. COLE. Well, I have read them; but the devil of it is remembering them after you read them. [Laughter.]

(The committee thereupon adjourned until to-morrow, Tuesday, January 29, 1924, at 10.30 o'clock a. m.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Tuesday, January 29, 1924.

The committee met at 10 o'clock, a. m., Hon. Julius Kahn (chairman) presiding.

The CHAIRMAN. Mr. Benjamin C. Marsh has requested that he be heard briefly. Give the stenographer your name, Mr. Marsh, and tell us something about whom you represent.

STATEMENT OF MR. BENJAMIN C. MARSH, MANAGING DIRECTOR OF THE FARMERS' NATIONAL COUNCIL.

Mr. MARSH. My name is Benjamin C. Marsh, and I am managing director of the Farmers' National Council, with headquarters in the Bliss Building, here in Washington. You requested me to make a brief statement which would identify me, I believe.

The CHAIRMAN. That is sufficient.

Mr. MARSH. I would like to say that the Farmers' National Council is a special combination of farmers' organizations of the North and South, working for a national program of legislation; and, at a meeting held this year, early this month, January 7 to 9, the following statement, bearing on the bill before this committee, was adopted:

All natural resources such as water power, oil, coal, ores, and timber lands belong to the people, and the Government should not alienate those resources

still in public ownership. Muscle Shoals should be developed by the Federal Government for the benefit of the entire people.

Further, to identify the organization, I will state that there are about 790,000 or 800,000 members in these farm organizations, including the Farmers Labor Union of America, with some 300,000 members, mostly in Texas, Arkansas, Oklahoma, and Mississippi, although with some members in other States; most of the States Non-partisan Leagues; Societies of Equity, a few State granges, the Farmers Union, the National Gleaner Federation, and some similar organizations.

Now, we have recently had a cumulative revulsion of some breadth against the alienation of granting of concessions to individuals of the national resources in the history which is being made public as to certain oil concessions.

I am not going to discuss the merits or demerits, relatively, of any of the measures before this committee, because I want to inform you there will be introduced shortly a bill to create a public superpower corporation of the United States. We know perfectly well that private interests want to grab the water powers, timberlands, oil lands, coal lands, iron ores and everything else of that sort, which are still in the ownership of the Government, and we simply object to any one of these pending bills tending to alienate any of these natural resources.

Unfortunately, the sum total of the Government's activities has been to make the rich richer in the United States, and the poor poorer, and the farmers have reached that abject station of poverty where they have no fear whatever of their unchallenged entrance into Heaven when they give up this life; but they do not propose to be understood, by that admission, that they will much longer submit to the ills they suffer from the private ownership of natural resources, and they ask you to kill every one of these bills before you, Mr. Henry Ford's and all the rest, and to plan and work for something that will actually benefit the people, particularly the farmer.

Perhaps I should call attention to the fact that the Conference for Progressive Political Action which organized the political movement through the Northwest, and which is spreading into the South now, also wants very careful public control of our natural resources. I presume if I talked for two hours more I could not make our opposition any clearer.

The CHAIRMAN. No; and we would not like to have you talk for two hours, frankly. We would like to give you a fair hearing, and hope you will continue right along and conclude your statement, or will you close and let me call some one else.

Mr. MARSH. I say I could not make my opposition any clearer if I talked two hours longer. But if you want to know why these folks are trying to grab the natural resources, just insist upon legislation which will compel the Secretary of the Treasury to make public the income tax returns, that is, the names of these folks, and find out how much these people, who have secured grants of the natural resources are making. Of course, we understand what all these bills are; they are trying to get some special privilege and we ask you gentlemen to have a heart, may I say, for the first time and do something for the people of the country and to refuse further to alienate the natural resources and to consider what has been done in the hydro-electric activities up in Canada and to realize it is time for the Government to serve the people of the United States.

I think that concludes my statement. But just as a bit of warning, do not pass any of these bills, please.

Mr. MCKENZIE. Where is you home, Mr. Marsh.

Mr. MARSH. My home is right here in Washington, D. C., but I have traveled all over the United States and I campaigned in most of the States of the Northwest where political changes took place in 1922, and I can assure you that is only a start on what is going to happen this fall.

Mr. MCKENZIE. You just represent the poor farmers, I understand?

Mr. MARSH. I do not represent large land-owning and banker-farmers; they are represented by the Farm Bureau very effectively.

Mr. MCKENZIE. Do you represent the Illinois farmers?

Mr. MARSH. No, we have no organization in Illinois. We have a few small farm organizations and we work with them, and I have been asked to go out and campaign this month, against Medill McCormick, and I think, after that, we will represent quite a few.

Mr. MCKENZIE. You have a Chicago man to represent part of them?

Mr. MARSH. Heavens, no; you have not very many people here to represent them. I am glad you raise the point, because the farmers want men who will serve them. They know they do not go to a farmer to pull teeth or operate

on them for appendicitis. They just want men who are going to do the job thoroughly, honestly, and for their benefit.

Mr. McKENZIE. Have you ever thought about your farmers forming a cooperative association to take over the Muscle Shoals power, when the dam has been constructed? This is a serious question and is one worth while for them to think about.

Mr. MARSH. Yes; but I do not think it would be very easy for them to appropriate some millions of dollars and buy Muscle Shoals. It is a good deal like the suggestion for the railway employees to buy all the stocks and bonds of the railroads to suggest that the farmers buy Muscle Shoals. Of course, they have not the money to put in it—to put into a private concern supposed to represent all of us. The farmers are not asking the Government to give them the natural resources, but to have the Government to operate them for the benefit of the entire people.

Mr. McKENZIE. Did it ever occur to you that perhaps the Government would serve the farmers more economically by buying the nitrates direct from Chile and giving them to the farmers, than by operating Muscle Shoals?

Mr. MARSH. If that can be done more economically, I regret the party in control of the present Congress has not done it.

Mr. McKENZIE. Are you a Republican?

Mr. MARSH. I do not belong to any political party. I am like about 15,000,000 to 20,000,000 other voters in the United States who belong to that much feared balance-of-power combination.

Mr. HULL. You are opposed to both of these offers?

Mr. MARSH. Any offer which means alienating the natural resources.

Mr. HULL. Of course, you have read the offers, have you; or, in a general way, you understand what they are?

Mr. MARSH. I have not read all the bills in detail. I do not care what the offer is; I have read the Ford offer very carefully.

Mr. HULL. You are opposed to that?

Mr. MARSH. I am opposed to that entirely.

Mr. HULL. You understand that the other offer is purely a Government ownership offer to operate by a private corporation, under the supervision of the Federal Power Commission and the State Commission and a commission set up by the Government, to see that the farmers get cheap fertilizer; that is the principle at least. Do you understand that?

Mr. MARSH. Yes, sir; practically that. But I saw how that worked out in New York City, where I lived for awhile, where we had so-called public ownership of the subway system and private operation thereof. All the people did was to pay the bills and the private companies got the profits, and if the Government can not operate this natural resource efficiently they had better retire and I think, in the next few years, the people will elect a government that will.

Mr. HULL. I am a little inclined to think as you do in some ways. I want to be fair.

Mr. MARSH. Yes.

Mr. HULL. At least I am against the Ford proposition. [Laughter.] You understand that even though the Government owns it, it would ultimately have to sell the power, would it not?

Mr. MARSH. Yes, in a large measure. I do not know how much they are going to devote to the manufacture of nitrates, how much of the current.

Mr. HULL. You do not object to their selling, then, what power they could not use in the manufacture of nitrates?

Mr. MARSH. I would not object to the Government selling, naturally, what power they could not use in the manufacture of nitrates profitably, since they are going, as it is claimed, to sell the power at a low rate and if they will exercise supervision over the management, methods of operation, capitalization and prices charged by the corporation to which the Government sells the power, so that the ultimate consumer can benefit by the lower charge for primary water power.

Mr. HULL. I do not know whether I am right, but I think I am; that is just what they are attempting to do in the southern power companies' offer. At least, I so understand from very competent authority I think it is unquestionable that if we sell to these power companies, every bit of power that they sell the price is regulated by State commissions according to the price that they have to pay for it.

Mr. MARSH. You mean the price of the service rendered by the corporation to which the Government sells the water power is regulated?

Mr. HULL. Yes, absolutely. So that if there is a fertilizer concern in Macon, Ga., buying this power of some of these companies, with which to manufacture fertilizer, they get their power at the rate established by the State commission and that rate is based upon the amount of money that they pay for the power to the Government. I do not want to take up any more time of the committee—we have a great many here—but I just want to call your attention to that and if you have anything to show that is not true, I wish you would put it in the record.

Mr. MARSH. Even granting that is so, here is the point: We are trying to develop a public superpower for the United States.

Mr. HULL. Yes.

Mr. MARSH. Every time you lop off one big water power, at one place or another, you make it more difficult to establish a nation-wide coordinated publicly-owned superpower system, and, even though some bill has some features which might be admirable, we do not want to have any measure taken by Congress which injuriously affects a public superpower system.

Mr. HULL. You understand this Wilson Dam will be completed next year; consequently, some action should be taken pretty soon to start in at the proper time and get to work. Now, when we make a contract with the Southern Power Company, or any other company that wants to make a bid under the Federal power act, that is a lease and that lease is only for 50 years, under the Federal power act?

Mr. MARSH. The Federal power act is not very effective; it has not hurt anybody. I shall be very glad, however, if I understand the Congressman, to be able to report to the Conference for Progressive Political Action, which meets in St. Louis, that you are all in a hurry to pass this private power act.

The CHAIRMAN. After for two years having held hearings on it?

Mr. MARSH. Not on that bill; on another bill.

The CHAIRMAN. It was taken up by this committee just about two years ago.

Mr. GARRETT. The people who offered this bill, I might supplement, were invited two years ago to make bids and failed to do it.

STATEMENT OF CAPT. B. H. WILKINS, CHAIRMAN OF THE MUSCLE SHOALS COMMITTEE OF THE TENNESSEE MANUFACTURERS' ASSOCIATION, TULLAHOMA, TENN.

Mr. WILKINS. My name is B. H. Wilkins, chairman of the Muscle Shoals committee of the Tennessee Manufacturers' Association, Tullahoma, Tenn.

Mr. Chairman, I wish expressly to say to this committee that we are not here in the interests of any private bidder for this property, and I ask your patience just for a few moments to read the statement we have to make from the Tennessee Manufacturers' Association.

The Tennessee Manufacturers' Association is an organization composed of about 1,000 members of Tennessee. We have a great many factories in our State, though many of them are small, however, we take some pride in believing that we make a fair contribution toward the progress and prosperity of our State. The records of the United States Government show that the value added by manufacture annually in Tennessee is in the neighborhood of $225,000,000 and that the value of the raw materials used annually is approximately equal to one-sixth of the total assessable wealth of the State.

We have been very much interested in the proposals which have been made for the operation of the development in Muscle Shoals. A short time ago our president appointed a committee to investigate, or study the proposals made, compare them and make a report to the annual convention of the members of our Manufacturers' Association to be held in Nashville in February of this year. I have the honor to be chairman of this committee which is composed of—

Mr. Fred Arm, of J. M. Card Lumber Co., Chattanooga; Mr. M. H. Hunt, of Oliver-Finnie Co., Memphis; Mr. R. L. Beare, of Beare Ice & Coal Co., Jackson; Mr. E. J. McMillan, of Standard Knitting Mills, Knoxville; and Mr. Vernon Tupper, of Nashville Roller Mills, Nashville.

My company is engaged in the manufacture of overalls at Tullehoma. This committee has been endeavoring to gather information for its report. The committee was appointed only a short time ago, when it became apparent that there would be competition for the operation of the plant at Muscle Shoals. We expect to have a meeting as soon as we can get copies of the proposals

which have been coming in so rapidly. We expected to meet some days ago but have deferred because so many different proposals were apparently coming in that we thought it best to wait and have them all before us.

I am not here attempting to express the sentiment of all the members of Tennessee. The members of the committee are members of the board of directors of our association. We do have imposed upon us the responsibility of taking the leadership in things of this kind and of advising and assisting our members to get accurate information. As a matter of fact, our committee has thus far had only opportunity to read some of the proposals which have been filed and we have no opinion as yet as to the relative merits of any of these proposals. The committee feels it is very important at this time that your body have an expression of our impressions. Other members would have come with me but I excused them, as they are all busy men and as I felt it was not necessary for them to make this sacrifice in time now.

It is, I am sure, unnecessary for me to say anything to any member of this committee in explanation of why we have come here. We have no prejudices either for or against Mr. Ford, or for or against the subscribers to the other proposals which have been filed. The character of men who compose our committee, we believe, is a very definite assurance that we are here to try to serve the people of our State and in no sense those who may be interested in any particular proposal. We are grateful to this committee for the time and patient labor it has given to this matter. We realize you are engaged in arduous public service with great demands upon your time and that you are trying to work out a plan which will in the long run be of the most benefit to everybody concerned.

It may be said that the people of our State have a kindly feeling for Mr. Ford. We feel that his offer, made at a critical time, challenged the attention of the country to the values of Muscle Shoals and played some important part doubtless in the decision of the Government to undertake the improvement now being caried on.

The proposal of the Associated Power Cos. has also created a lot of interest, as well as the other proposals which have been made. We have not had time to get copies of the proposals other than of Mr. Ford and of the Associated Power Cos. The thinking people of our State, however, are gratified to realize that there is competition for the operation of this plant, and we have been reassured that out of this competition a plan would be adopted which would provide a fair return to the country for the rights and privileges conferred. We feel the manner of the operation of the plant at Muscle Shoals is one of the most important and one of the most vital questions of an industrial character which can come before the people of our section of the country. We therefore counsel careful and deliberate consideration of all proposals which may in good faith be made. In addition to the committee of our association, other committees are being appointed by various other organizations and there is a disposition now to inquire into just what the whole thing means.

Our feeling is, that inasmuch as our Government has such a large investment in the Florence district, for this, and every other reason, by far the most important thing is the availability of this development for time of war. We feel that, subject to this primary use, the production of cheap fertilizer is by far the next most important. Subject to these are navigation of the river, and the availability of power throughout the section for municipalities, industry, and the public generally.

Those are our particular sentiments in regard to this proposition.

We may say that we are entirely satisified, from our brief examination, with either the proposal of Mr. Ford, or of the associated power companies. We understand that it is by no means certain that a way has yet been found whereby cheap fertilizer can be produced through the fixation of nitrate from the air. We believe the question of cheap fertilizer for the refertilization of the soil is a question of the greatest importance to this country, and we hope in the disposal of this plant the use of a large amount of power for experimentalization purposes and the production of fertilizer will be made certain. We earnestly hope also, that thoroughly adequate financial guaranties be had which will insure the doing of all things within reason to provide cheap fertilizer. If manufacturers have no sympathy with the problem of the farmer, they would still be interested in abundant crops, because these, in the main, are the raw materials which the manufacturer requires.

We believe also in the great importance of navigation of the Tennessee River. We believe commerce of the country on the rivers will again come into great prominence because of the high cost of other means of transportation.

We understand the development of this river, together with the use of auxiliary plants over a relatively small part of the year, may provide as much as 600,000 horsepower. We understand that in no event would the requirements for the production of fertilizer require more than the smaller portion of that power. We are interested in what will be done with the rest of this power.

While, as I have explained to you, there has yet been no opportunity to ascertain and interpret the sentiment of manufacturers in Tennessee, my judgment is that, all other things being equal, the people of our State and of the section generally will be eventually greviously disappointed if this power is not made available for general use. The cost of the fuel and the cost of transportation of fuel in the South has vastly increased during the last 10 years. We do not know whether these costs will not greatly increase during the coming years. We are reluctant to see this last natural water power capable of serving a large section placed where it will not help us to meet the competition of the only other method of producing power now known. The farmers of the South produce a great many products, including corn, rice, cotton, tobacco, wool, and numerous other products. Electric power may be transmitted at a cost relatively low in comparison with the transportation of fuel. We believe cheap power would not only tremendously stimulate industry in the large centers, but also in the rural sections where raw materials are produced and are suitable for manufacture. Hence, we hope power from this development may be made available for the public in a manner which will limit earnings of the operator or the distributer to a reasonable amount, based upon an actual physical property used for the purpose.

It has been stated that under the terms of the proposals filed the operator would obtain power at very low cost. If this be true, we trust you gentlemen will see to it that it may be used by the people of the country at reasonable cost. In such brief time as I have had occasion to get into this whole matter those to whom I have talked have the following impression in which I concur:

First. If a guaranty can not be had of the production of cheap fertilizer, it is preferred that the United States Government retain control to the extent which will enable the Government to experiment and perhaps fully solve this problem.

Second. That no proposal should be accepted which does not provide assurances and guaranties supporting thoroughly adequate financial support of every effort to produce cheap fertilizer.

Third. That navigation of the Tennessee River would be provided.

Fourth. That the Federal water power statutes should apply to any contract with any licensee.

Fifth. That power not needed for navigation and production of fertilizer be offered to the public under regulations as to costs to the consumer and other conditions which apply to public-service corporations.

I believe it would be better for the Government to operate this property, notwithstanding my aversion to Government operation generally, than to have this plant operated by a licensee without being subject to these conditions enumerated. I believe to place this vast project created out of the funds of taxpayers in the hands of any licensee to use as it saw fit for a period of time reaching beyond this generation and succeeding generations is not only un-American and dangerous but would, in the long run, result in a great disappointment to the people of the country and to the United States Congress.

I hope I will not appear in a selfish attitude for my section. We are led to believe the time is not far distant when electric power may be transmitted great distances and when the power from this project could be available, perhaps, for our entire country.

Mr. WURZBACH. That really excludes the Ford offer, does it not?

Mr. WILKINS. No, sir. We do not propose to exclude any offer in our proposition; all we want is the regulation, so that when this power is distributed it will be for the benefit of the adjoining States.

Mr. WURZBACH. But the Ford offer contemplates the power that remains, after a certain amount that is used for fertilizer production, is to be used by him in his own private enterprises.

Mr. WILKINS. As I read the information given to this committee, his engineers stated they were not obligated to sell the power.

Mr. WURZBACH. That is what I say. It is contemplated in the Ford offer that any of the power not used for fertilizer producion is to be used by Mr. Ford for his own enerprises.

Mr. WILKINS. Yes, sir.

Mr. WURZBACH. So, therefore, the stipulations that you have there would necessarily exclude the Ford offer.

Mr. WILKINS. No, sir. We do not intend, I think, to convey that impression; because what we desire, first, is fertilizer. Of course, that comes first to us in our country, because we are absolutely dependent upon the farmers for our progress. The second is that any surplus power left to the Government should be distributed to the manufacturers or industries throughout the States next to that great power, at a rate established by the Government and the water control of the Federal Government to be retained.

Mr. WURZBACH. Well, if the Ford offer does not contemplate that, then the terms stated by you would necessarily—not in terms, but necessarily—exclude the Ford offer, because he does not intend to distribute power to the public over and above the amount used by him for fertilizer manufacture.

Mr. WILKINS. If that is the case, sir, we certainly would not be in favor of it.

Mr. HULL. You are opposed to the Ford offer because in another way, as I understand it, you are opposed to anyone having this power who does not come under the Federal water act. Is that not true?

Mr. WILKINS. Yes, sir; I do.

Mr. HULL. Then you are opposed to Ford's present proposition?

Mr. WILKINS. Yes, sir.

Mr. HULL. You are not opposed to Ford's proposition, however, if he will come under the Federal power act and qualify in certain other respects?

Mr. WILKINS. Certainly.

Mr. HULL. You have no prejudice against Ford?

Mr. WILKINS. No, sir. I wish to say to the members of this committee that the people of our section of the country are very much impressed with Mr. Ford, but I do not think they have studied the proposition; because I think in the investigation we have made we have probably asked 50 or 100 people if they had read the proposition thoroughly, and we stated to them that Mr. Ford did not guarantee to make fertilizer and did not propose to distribute this power except for his own benefit, and that it could not benefit them, and it has awakened a new interest in the business.

Mr. MCKENZIE. As I understand your position, you are interested in the disposition of the surplus power not used for the manufacture of fertilizer?

Mr. WILKINS. Yes, sir.

Mr. MCKENZIE. And you seem to feel that the American people are interested in whether that surplus power shall be sold to Bill Jones or Sam Brown and, in this case, you are for Sam Brown; that is, you want it sold to your friends and Mr. Ford might use it for some other purpose. Now, so far as the American people are concerned, that is immaterial, is it not?

Mr. WILKINS. Well, I can not agree with you on that proposition in regard to my plant. I am being supplied with electric power that answers my purpose.

Mr. MCKENZIE. I do not mean it that way.

Mr. WILKINS. Of course, as I stated previously, I have no selfish motive; it is simply that this power should be distributed to the people particularly in Tennessee and Alabama.

Mr. JAMES. I understood you to say you were against any offer that did not provide for navigation?

Mr. WILKINS. Yes, sir; navigation came in our proposition.

Mr. JAMES. What particular paragraph in the affiliated companies' offer provides for navigation?

Mr. WILKINS. I could not answer that question. I will let you answer that question.

Mr. JAMES. I will tell you there is none. In effect, then, you are against that offer also?

Mr. WILKINS. In the navigation?

Mr. JAMES. Yes; if you make that as a condition.

Mr. WILKINS. Our people are very much interested in the navigation of the Tennessee River.

Mr. JAMES. There is nothing in their offer for navigation.

Mr. WILKINS. You understand, gentlemen, we are not here to advocate any proposition except one that comes under these conditions we have stipulated.

Mr. WAINWRIGHT. As I understand, you are principally interested in the distribution of the surplus power after the power that is necessary for the manufacture of nitrates?

Mr. WILKINS. Yes, sir.

Mr. WAINWRIGHT. And, of course, you are interested in seeing that it is distributed at as reasonable a cost as possible?

Mr. WILKINS. Yes, sir.

Mr. WAINWRIGHT. Now, have you any views as to how that result may be best accomplished as far as the primary source of power is concerned, namely at the dam; that is, the operation of the generators, and so on, right at the dam, whether by private interests or by the Government?

Mr. WILKINS. No, sir. I have not gone into it that deeply. I do not know how the power would be transmitted. Of course, it would be a powerfully expensive proposition to have the power transmitted to any man who takes hold of Muscle Shoals. Any company or organization must have the means to make that distribution and the Government, I think, should see that they do have the means to make the distribution.

Mr. WAINWRIGHT. I am not talking about the distribution, I am talking about the generation of the power and furnishing it to the distributer at the source. Is there any reason why the Government could not do that as economically as private interests?

Mr. WILKINS. I do not know. My experience in Government operation has been that it has never been as economically managed as private business.

The CHAIRMAN. That is not alone in regard to this thing, but everything?

Mr. WILKINS. Yes, sir.

Mr. WAINWRIGHT. What is your reason for believing, if you do believe, that this great enterprise right at the dam should be turned over to any private interest?

Mr. WILKINS. I suppose the main reason is if we get business men interested in this business, they are interested in the profit that will accrue to the corporation and, of course, they could not make anything out of it without distributing the power. The distribution of the power would be their source of profit and it would be to their interest to distribute this power as far as they could. They will have available probably 600,000 horsepower and, take the city of Nashville, which uses 25,000 horsepower, you can see how far 600,000 horsepower could be distributed, even to municipalities.

Mr. WAINRIGHT. The city of Nashville is not concerned as to whether the primary source of power shall be operated by the Government or by private interests. Its only interest is to get the power at the cheapest rate.

Mr. WILKINS. Is to get the power, yes, sir; except I think the people generally are opposed to government ownership. That is the sentiment of our people.

Mr. GARRETT. When was your committee organized that you report from there, Mr. Wilkins?

Mr. WILKINS. It has not been more than a week or 10 days. Of course the committee has been standing for some time, but its development has only come to us in this new information that we have gotten in regard to this plant.

Mr. GARRETT. How did it come?

Mr. WILKINS. It came to us by a more careful reading of the bids and information given about it in the newspapers.

Mr. GARRETT. Who called your attention to them.

Mr. WILKINS. Mr. John Edgerton, president of the Tennessee Manufacturers' Association.

Mr. GARRETT. About two weeks ago?

Mr. WILKINS. Somewhere about that time.

Mr. GARRETT. Do you recall in 1922, beginning on the 10th of February, 1922, and during all the summer of 1922, that this committee had this project before it for public hearings?

Mr. WILKINS. Yes, sir.

Mr. GARRETT. This very identical proposition that is before it now?

Mr. WILKINS. Yes, sir; I do.

Mr. GARRETT. Why did you people not raise some objection to it then?

Mr. WILKINS. For the simple reason, Mr. Garrett, that the people of the whole country have been so flooded with a great long mass of information, that there is not one man in a thousand who has sat down and read it carefully.

Mr. GARRETT. Are you also aware of the fact that during that time the Alabama Power Co., that has now organized these allies and made this proposition—during that entire time—was interested only in retaining the Gorgas plant, which it now owns, having purchased from the Government, and that it made no effort to defeat the Ford proposition except in so far as it related to the Gorgas plant? Are you aware of that?

Mr. WILKINS. Yes, sir.

Mr. GARRETT. Now, is it not true that all this evidence that has come down here, including that presented by your committee, has emanated from the Alabama Power Co. and its allies in the last four weeks?

Mr. WILKINS. I can not say that exclusively, sir.

Mr. GARRETT. Just as near as you can.

Mr. WILKINS. Of course, it has been the means that has been valuable to us in coming to our conclusion: because they have developed and brought out a great many of these questions.

Mr. GARRETT. You are interested primarily in the fertilizer end of it, you say?

Mr. WILKINS. Only as a manufacturer. Manufacturers are dependent upon the farmers you know, of course. I am not a farmer at all; I do not farm at all.

Mr. GARRETT. If there is not a substantial fertilizer proposition connected with any other proposal for the disposition of this project, you would not be in favor of the proposition?

Mr. WILKINS. How is that?

Mr. GARRETT. I say if any proposition to take over this property does not carry with it a substantial guarantee to the people that fertilizer will be made therefrom, you would not be in favor of that proposal, would you?

Mr. WILKINS. I would be in favor of it so far as the distribution of power is concerned. Of course, all of our people sincerely hope that fertilizer may be in it; because we are here in the interest of the farmers just as much as we are in the interest of the industries.

Mr. GARRETT. The people who have organized the propaganda during the last three or four weeks, the first proposition they make to the committee is for power, and power only. It makes no mention of fertilizer and it makes no mention of plant No. 2 to be kept in a stand-by condition for war purposes, for the making of nitrates. Would you be in favor of that proposition just by itself?

Mr. WILKINS. For power alone?

Mr. GARRETT. Yes.

Mr. WILKINS. No, sir; under the developments I do not believe I would, because I feel, so far as my information goes, I do not believe the extraction of nitrates from the air is a success. I believe that is foregone; but I do hope the Government itself, or some of these organizations, will develop a plan by which it can be done and that primary object of the whole start of the business will be accomplished.

Mr. GARRETT. Then, as I understand, you want any proposition accepted down there to comply with the national defense act?

Mr. WILKINS. Yes, sir.

Mr. GARRETT. In that it shall take care of plant No. 2, for the manufacture of nitrates in time of war and that it shall establish a substantial fertilizer manufacturing plant there for the making of fertilizer in time of peace? I understand that you are in favor of those two primary propositions?

Mr. WILKINS. Yes, sir.

Mr. GARRETT. Would you prefer that those propositions should be covered by one company or a number of companies—as a business man?

Mr. WILKINS. Well, if the whole purpose of the business is controlled by one organization, under Federal supervision, I believe I would prefer one company.

Mr. GARRETT. Well, regardless of any Federal supervision, as a business man, I ask you now, whether if you want that carried out, would you prefer one company with a paid-up capital stock of $10,000,000 or $20,000,000 to operate that in its entirety, or to have it split up with a number of organizations?

Mr. WILKINS. Without Federal supervision, I would rather have a number of them, because it would create competition.

Mr. GARRETT. It has Federal supervision, you understand, no matter who gets it. Congress is sitting here over that proposition during this entire 100 years. The Federal supervision is simply a kind of Trojan horse brought in here. Congress can take care of that proposition at any time, but what I want to get at is your opinion, as a business man, whether or not you

would rather have one substantial corporation to control and manage the whole thing, or to have it split up and have a division of responsibility?

Mr. WILKINS. I would rather have it under a substantial organization.

Mr. GARRETT. That is all.

Mr. HILL of Alabama. Have you ever read the Federal water power act, from beginning to end?

Mr. WILKINS. No; I do not think I have, sir.

Mr. HILL of Alabama. You have never read the Federal water power act from beginning to end, but you have written a letter there stating you would be opposed to any proposition that did not come under that act.

Mr. WILKINS. Yes.

Mr. HILL of Alabama. You are a business man, I take it?

Mr. WILKINS. Yes.

Mr. HILL of Alabama. If you were the president of a bank, would you make any recommendation to your board of directors or to your stockholders in regard to the bank adopting certain rules and regulations without having read those rules and regulations?

Mr. WILKINS. That depends upon whom I had associated with me. Of course, if I had confidential men associated with me for that purpose—you have heads of departments, men whom you select to handle certain departments, because you can not do everything, and you are bound to distribute responsibility.

Mr. HILL of Alabama. If it was a big proposition which involved a change of the policy of your bank, do you think you would recommend a change without having looked into that policy?

Mr. WILKINS. I expect I would take a little more care of it in a case of that kind.

Mr. HILL of Alabama. You would take a little more care of it in a case of that kind?

Mr. WILKINS. Yes.

Mr. HILL of Alabama. Do you not recognize what a tremendously big thing Muscle Shoals is?

Mr. WILKINS. I do.

Mr. HILL of Alabama. And yet you recommend that any proposition for taking over Muscle Shoals should come under the Federal water power act and you have not read that act?

Mr. WILKINS. I do; because we have counsel who have advised us on that subject.

Mr. HILL of Alabama. You would accept just what your counsel gave you?

Mr. WILKINS. I would when it comes to the interpretation of a Federal law.

Mr. HILL of Alabama. I mean, would you accept what your counsel gave you in regard to a change of policy? That is just what this is, as to how that Muscle Shoals shall be operated.

Mr. WILKINS. Yes; but you asked me if I had read the details of the law.

Mr. HILL of Alabama. You said you had not.

Mr. WILKINS. I have not.

Mr. HILL of Alabama. As I understand, you are here representing the manufacturers and your plea is that the power not used for nitrates at Muscle Shoals shall be sold to the manufacturing interests and such things as that; is that correct?

Mr. WILKINS. Yes, sir.

Mr. HILL of Alabama. When did you arrive in Washington?

Mr. WILKINS. I came in this morning.

Mr. HILL of Alabama. Did you go to the Washington Hotel?

Mr. WILKINS. No, sir; I went to a private residence; to my daughter's.

Mr. HILL of Alabama. Had you seen Mr. Tom Martin, president of the Alabama Power Co. before you appeared before the committee?

Mr. WILKINS. No, sir.

Mr. HILL of Alabama. You had not seen Mr. Tom Martin before you appeared before the committee?

Mr. WILKINS. No, sir; I had not; I had not seen the representative of any company.

Mr. HILL of Alabama. I believe you said Mr. Ford was to make fertilizer, as you understand, only under the condition that he make a profit out of it?

Mr. WILKINS. That is my understanding.

Mr. HILL of Alabama. Have you read the McKenzie bill, which is the bill accepting the Ford offer?

Mr. WILKINS. No, sir; only the headlines, not the details of it.
Mr. HILL of Alabama. Have you read the Ford offer itself?
Mr. WILKINS. Yes, sir; I have read the Ford offer.
Mr. HILL of Alabama. Do you so consider that offer to mean that he would not make fertilizer unless he could make a profit?
Mr. WILKINS. Well, from Mr. Ford's offer I could not make that decision, exactly; but from the developments that have come before this committee.
Mr. HILL of Alabama. Oh, you just state that, then, on the developments, on hearsay, of the different men who have expressed opinions here?
Mr. WILKINS. Before this committee.
Mr. HILL of Alabama. In other words, on that proposition, you just accepted not what you knew or had looked into, but merely what you heard and read in the paper?
Mr. WILKINS. Yes, sir; with my reading of his offer.
Mr. HILL of Alabama. And you have not read the McKenzie bill?
Mr. WILKINS. No; I do not think I have, no, sir.
Mr. HILL of Alabama. You are a business man, I believe?
Mr. WILKINS. Yes, sir.
Mr. HILL of Alabama. Would you make a contract with a corporation, if that corporation was in danger of having its charter revoked and the charter being declared null and void, particularly if the contract involved many millions of dollars and was of particular interest to your concern?
Mr. WILKINS. No, sir.
Mr. HILL of Alabama. You would not do so?
Mr. WILKINS. No, sir.
Mr. HILL of Alabama. I understand some one else from Tennessee is going to testify?
Mr. WILKINS. Yes, sir.
Mr. HILL of Alabama. That is all.
Mr. JAMES. I understood you to say there was no fertilizer guarantee in the Ford offer: Did you ever read section 14?
Mr. WILKINS. How is that?
Mr. JAMES. I understand you to say there was no guarantee to manufacture fertilizer in the Ford offer?
Mr. WILKINS. Unless he can make a profit.
Mr. JAMES. Did you ever read that section?
Mr. WILKINS. Not in his bid; it was developed here.
Mr. JAMES. Then you do not know anything about it?
Mr. WILKINS. Nothing except reading his bid and what has been developed here.
Mr. MCSWAIN. As I understand it, you have lived in Tennessee and have been studying this Muscle Shoals project for a long time?
Mr. WILKINS. Yes, sir, I have been interested in it ever since it came up of course.
Mr. MCSWAIN. A great many years ago?
Mr. WILKINS. Yes, sir.
Mr. MCSWAIN. But only recently did you begin a thorough and systematic study of the various propositions?
Mr. WILKINS. Yes, sir.
Mr. MCSWAIN. As a result of that study, you have come to the conclusion you are opposed to both of the pending offers?
Mr. WILKINS. Unless they carry the provisions we have mentioned in this statement.
Mr. MCSWAIN. You have studied them?
Mr. WILKINS. Yes, sir.
Mr. MCSWAIN. Do they carry the provisions you have mentioned?
Mr. WILKINS. No, sir.
Mr. MCSWAIN. Then you are opposed to both of them?
Mr. WILKINS. No, sir, I do not want to say I am opposed to both of them, because I do not want the committee to understand I am opposed to any bidder for this proposition.
Mr. MCSWAIN. I did not call any names.
Mr. WILKINS. That is the only position I take.
Mr. MCSWAIN. In other words, unless your proposition can be carried out, you would rather see the Government operate Muscle Shoals?
Mr. WILKINS. Yes, sir; of course, if it can not be handled outside of that. I am opposed to Government operation, but if it can not be done any better by private operation, then I would favor that.

Mr. McSWAIN. You are opposed to both offers and you are opposed to Government operation: That being so, would you like to see the waters go over the rocks forever in your State?

Mr. WILKINS. No, sir; I can not agree with you.

Mr. McSWAIN. Then what do you favor?

Mr. WILKINS. I favor those people modifying their bids.

Mr. McSWAIN. But the people won't modify them.

Mr. WILKINS. I have been in business for a long time, and I know that no business deal is ever settled on the first bid.

Mr. McSWAIN. How would you make them comply with your proposition?

Mr. WILKINS. I could not tell you.

Mr. McSWAIN Then, in other words, unless somebody comes up to the committee with a proposition which did comply, you would say let the water go over the rocks?

Mr. WILKINS. Yes, sir, and have hopes it would be settled.

Mr. REECE. You expressed an interest in the distribution of this power. Now some gentlemen on the committee seem to have an idea that your interest lies in this power being distributed to a few industries down there adjacent to the plant. As I understand it, that is not the case; but you are interested in this distribution of power as a general proposition and, if it can be carried to Illinois economically, then you are not expressing a preference as to the territory to which it may be distributed?

Mr. WILKINS. No, sir. If it can go to California, let it go.

Mr. REECE. There also seems to have been some question raised as to when you began an intimate study of this proposition and became interested in it. Down in Tennessee, is it not quite often the case that farmers do not lock their cribs until they catch somebody in their corn?

Mr. WILKINS. Exactly.

Mr. REECE. That is all.

Mr. WILKINS. We are anxious to have Mr. McGugin, who has been the counsel for the Tennessee Manufacturers Association, make a statement, because he is thoroughly intimate with our desires.

STATEMENT OF MR. DAN E. McGUGIN, NASHVILLE, TENN., ON BEHALF OF THE MUSCLE SHOALS COMMITTEE OF THE TENNESSEE MANUFACTURERS ASSOCIATION.

Mr. McGUGIN. Gentlemen, Captain Wilkins, as chairman of the committee, I think, has covered the ground pretty well. I am not a member of the committee, but have been, for a number of years, attorney for the Tennessee Manufacturers Association. I think that the reason for it is not any legal ability, but because the president of it happened to be an old football player along about my time. There is, however, a telegram here from Mr. Edgerton which I would like to read. This committee, the Muscle Shoals committee, was appointed about two weeks ago, and about the time when this first offer of the power companies went in, and Mr. Edgerton directed me to try to get hold of those proposals and the record and to make a study of those proposals. I confess, in the limited time I have had, that I have not the knowledge of these contracts and the record and hearings that I would like to have or perhaps should have.

Our expenses here are paid by the Tennessee Manufacturers Association and I believe we have, I know we have, no other representation here other than what we believe to be the wishes of the association. We tried hurriedly to prepare, in this limited time, the statement which Captain Wilkins has read. I also prepared one and we sent copies of it to the committee and talked to the members of the committee over the telephone, and sent one to the president of the association, Mr. Edgerton, who is a well-known manufacturer at Lebanon, and we asked the committee to wire us here if they thought we should leave unsaid anything which Captain Wilkins has stated, or add anything to it. I have a telegram from Mr. Edgerton which I would like to trespass on your patience long enough to put into the record. It reads:

"Believe that I reflect the views of not only the manufacturers but all other thoughtful citizens of Tennessee when I say that since Muscle Shoals belongs to all the people the largest benefits to the greatest number should be governing thought in disposal of the property. Any contract made by the Government as agent for the people should obviously carry guarantees of cheap fertilizer for the farmers of the Nation, free navigation of Tennessee River, adequate electrical power for operation of Government locks, and all

surplus power not thus consumed to be available to municipalities, industries, and the public in general. Whoever the licensee, whether individual or corporation, he should be required to pay taxes like other citizens or corporations, and to operate under the national water power act and subject to such other Governmental regulation as will secure in perpetuity the rights of the public. The people are beginning to realize that this property is much more valuable than at first thought; that it constitutes one of the greatest natural resources of the Naion; and that it should not be bargained away in a moment of hysteria until every effort has been exhausted to get the best proposition and evaluate its merits. Am sure you will impress upon Military Affairs Committee that we have no prejudice in favor of anybody and are interested only in seeing this property disposed of to the best advantage of all the people, and we insist that there is no emergency to justify a hasty closing of the matter. A transaction of such unprecedented magnitude and involving the vital interests of all Americans now living and yet to be born should have in it no uncertainty that the patient expenditure of time can eliminate."

The CHAIRMAN. Do you think that a period of two years of time is a hasty judgment regarding the matter?

Mr McGUGIN. No, sir.

The CHAIRMAN. This committee has been considering this matter for that length of time.

Mr. McGUGIN. No, sir; we do not. We think that the committee has spent a lot of time and has been very patient, and I am sure Mr. Edgerton did not mean any affront to the committee. What he had in mind was that before final action is had by Congress, we would have an opportunity to get these various offers into the hands of all of our members, so that they will understand all the different features and have an opportunity to express themselves.

The CHAIRMAN. Of course, when this committee finally reports to the House, we do not know how long it will take the House to express its action regarding the matter.

Mr. McGUGIN. And that is what he means, Mr. Chairman. He probably overlooked the fact that the committee has been on this a long time.

Now there is no statement that I can make that would add perhaps anything to what Captain Wilkins has said. We have tried to study this thing and I believe there is not one man in ten thousand who has read the Ford proposition. I am going to say to you, very frankly, that we all down there, stand out for Ford. We got the idea he was a big genius in industry and, so far as we knew, nobody else was interested. I would say, frankly, that back yonder, when the Alabama Power Co. made its first offer, there was an impression perhaps that the Alabama Power Co. was not in good faith. How that may be, I do not know.

The CHAIRMAN. Do you think any propaganda was worked down there, because the chairman of the committee, at the very outset, began to receive telegrams from all over to accept the Ford offer?

Mr. McGUGIN. Well, I think Mr. Ford is the best advertising man in the history of the world. [Laughter.] I think that he has ways of reaching the sentiment of the people. The people of the South, for 100 years, have had an idea that Muscle Shoals was capable of producing a great deal of power. After the war a committee came down there from Congress, my friend Mr. Jeffers was on it, and I had the pleasure of meeting the committee at Muscle Shoals. We were down there with that big thing; we had seen $100,000,000 invested down there, and we were all apprehensive that the whole thing was going to be junked. Then Mr. Ford came in at a rather critical time and made a suggestion to Congress that challenged the attention of the country to the value of the property. We were grateful to him for this and began this work with the feeling we were all for Ford. But now that other offers have come in and believing that the power companies are now acting in good faith—we have no reason to doubt that at all—we have gone into a study of the matter as we naturally would not have done when there was only one proposition submitted.

I will say, in support of Captain Wilkins, that since Mr. Edgerton told me to go into this thing and see if I could make some comparison of these offers and what they meant, that I have asked 50 men in Nashville questions about like this:

I have asked them as to how they stood on the Muscle Shoals proposition, and they would say, "Well, we are for Ford."

Then I have asked further questions something like this—and I have done it not with any attitude of antagonism to Mr. Ford, but to see what they knew

about the proposal—I asked, "Do you know Mr. Ford is not buying the dams and power houses now being constructed, but that he is proposing to pay something like 4 per cent or less of their cost, annually, for their use? Do you know he does not guarantee to produce fertilizer and sell at prices either above or below present costs? Do you know Mr. Ford would not be subject to the laws of the United States embraced in what is known as the national water power act? Do you know Mr. Ford is not putting his personal fortune behind this undertaking, or any considerable part of it, but proposes a corporation to be formed by him, which shall be licensee? Do you know, under his proposal, neither he nor his company, is obliged to sell power to the public; but, on the other hand, that he has stated power would not be sold to the public? Have you read his proposition?"

Out of the 50 men of whom I have asked those questions, every one of them, I think, has answered "No" to each one of those question. They say, "We thought he agreed to make an enormous amount of fertilizer down there cheap." "We thought this power was going to be sold over the territory." "And, if those things are not true," that brings on more talk.

We may be a little bit selfish; we, of course, all of us are selfish; but as near as I can tell—this is my personal impression; (I am not appearing for the Manufacturers' Association, because we do not know what their impressions will be until we have had this annual meeting in February)—we are in this situation: We are short of power now. There has not been any particular complaint, so far as I know, in Tennessee at the prices at which electric power has been sold. In middle Tennessee I happened to be vice president of a little furniture factory and we have no complaint to make of the prices we paid for power. But we are short of power and we have industries coming in that want to make use of materials and would like to use power. I know the Tennessee Power Company is developing a dam up higher on one of its hydro electric sites and we have an idea if the Government will so dispose of this development, as to insure in some manner that everything possible will be done to produce cheap fertilizer, that the rest of the power ought to be available to the territory.

We think that for two or three reasons. In the first place, you gentlemen doubtless noticed a very interesting article by Mr. Herbert Hoover in the Sunday papers—I suppose it was a syndicate article—in which he discussed the proposition generally, along this line: He said improvements have been made in developing the transmission of electricity and appliances are bringing us into a new day on all of these things and we do not know but what a horsepower 10 years from now, or 20 years from now, may be worth in its use 10 times what it is worth at present. And here is a tremendous amount of power, only a small part of which could be utilized for fertilizer, inasmuch for the development of which taxpayer is providing the money. This development is on a subject matter that is peculiarly within the jurisdiction of the Federal Government, that is, a navigable stream. Therefore, we feel that after the fertilizer question is taken care of the power ought to be distributed under some regulation that will limit the earnings to the investment in the actual physical property used for that purpose. And we believe this would be a better and more American way of disposing of it, than to say to some individual, no matter how great a genius he may be, or to this corporation: "Take this development for 100 years and use it any way you see fit."

The CHAIRMAN. Do you believe in Government ownership?

Mr. MCGUGIN. I believe in Government ownership in this sort of a construction. I do not believe, as a rule, in Government operation of any business.

The CHAIRMAN. So that if this committee were to decide what was to be done with the Muscle Shoals site, you would favor that the committee would recommend to the House that it be sold to some bidder—some one bidder?

Mr. MCGUGIN. Yes, sir; with the right of recapture and the other provisions which the Federal water power act provides.

The CHAIRMAN. That was the position that was taken by your predecessor?

Mr. MCGUGIN. Yes, sir.

The CHAIRMAN. Have you finished?

Mr. MCGUGIN. Yes, sir; I think I have finished. I was just going to add this one other thing, that we feel that electricity and its transmission will be a very valuable thing throughout the whole section; that it is getting improved to a point now where the farmer can run his corn sheller and light his barn, and it will be used for a great many purposes, perhaps, to be developed within the next 10 or 15 years. I will say this is in back of my head, as a manu-

facturer, and solely on my own account, that if if any one person or corporation has the right to use all this pwer at a very low price—we do not know whether the price will be low, but assuming it is—and has a source of power at one-third or one-fourth or one-tenth, or whatever it may be, of our cost of power, that he or it could rather jeopardize industry through that preference. And while we have this sentimental feeling for Mr. Ford, we would like to have him under some regulation, the same as anybody else, as to the sale of this power.

Mr. McKENZIE. In view of the fact that you are a lawyer, I want to ask you just a few questions. I take it you have read the Ford offer and the offer made by the allied power companies and, as far as they have been made, the other power company offers on this proposition?

Mr. McGUGIN. Well, I have read the Ford offer and I have read the first offer that was filed by the power companies and I have tried to get copies of the others, but I had not been able to get them before I left Tennessee.

Mr. McKENZIE. I assume that all of these offers—and I think we have a right to assume—made by the power companies and by Mr. Ford have been made in good faith and I think the feeling of this committee is that they are anxious to get the control of this power down there under the provisions of the propositions they have submitted to the Secretary of War and which have been transmitted to this committee by the Secretary of War. Now I think, unintentionally, perhaps, that you and other gentlemen are getting the waters pretty well muddied in connection with these various offers, so far as their being or not being placed under the water power act is concerned. Are you aware that the offer submitted by Mr. Ford is not only unique, but it is an offer standing outside and far beyond any requirement of a lessee under the water power act? You are aware of that, are you not?

Mr. McGUGIN. Well, now, Mr. Chairman, I am not going to attempt to qualify as a lawyer with respect to these different contracts, but I will tell you what my impression is as to that and I may be wrong. If I am wrong, I hope you will correct me, so that I may correct any false impressions among the members of this association. I have examined the Alabama public utilities act, because this property is located in Alabama, and I am unable to see how Mr. Ford and/or his corporation, under his offer, is bound at all by the provisions of this Act.

If the Ford proposal is accepted it will not be under the Federal water-power act, and hence the regulation provided for by that act can not apply to Muscle Shoals. This is so because of sections 19 and 20 of that act, which are as follows:

"SEC. 19. That as a condition of the license, every licensee hereunder which is a public service corporation, or a person, association, or corporation owning or operating any project and developing, transmitting, or distributing power for sale or use in public service, shall abide by such reasonable regulation of the services to be rendered to customers or consumers of power, and of rates and charges of payment therefor, as may from time to time be prescribed by any duly constituted agency of the State in which the service is rendered or the rate charged. That in case of the development, transmission, or distribution, or use in public service of power by any licensee hereunder or by its customer engaged in public service within a State which has not authorized and empowered a commission or other agency or agencies within said State to regulate and control the service, or the rates and charges of payment therefor, or the amount or character of securities to be issued by any of said parties, it is agreed as a condition of such license that jurisdiction is hereby conferred upon the commission, upon complaint of any person aggrieved or upon its own initiative, to exercise such regulation and control until such time as the State shall have provided a commission or other authority for such regulation and control: *Provided*, That the jurisdiction of the commission shall cease and determine as to each specific matter of regulation and control prescribed in this section as soon as the State shall have provided a commission or other authority for the regulation and control of that specific matter.

"SEC. 20. That when said power or any part thereof shall enter into interstate or foreign commerce the rates charged and the service rendered by any such licensee, or by any subsidiary corporation, the stock of which is owned or controlled directly or indirectly by such licensee, or by any person, corporation, or association purchasing power from such licensee for sale and distribution or use in public service, shall be reasonable, nondiscriminatory, and just to the customer, and all unreasonable discriminatory and unjust rates or

services are hereby prohibited and declared to be unlawful; and whenever any of the States directly concerned has not provided a commission or other authority to enforce the requirements of this section within such State or to regulate and control the amount and character of securities to be issued by any such parties, or such States are unable to agree through their properly constituted authorities on the services to be rendered or on the rates or charges of payment therefor, or on the amount or character of securities to be issued by any of said parties, jurisdiction is hereby conferred upon the commission, upon complaint of any person aggrieved, upon the request of any State concerned, or upon its own initiative, to enforce the provisions of this section, to regulate and control so much of the services rendered and of the rates and charges of payment therefor as constitute interstate or foreign commerce, and to regulate the issuance of securities by the parties included within this section, and securities issued by the licensee subject to such regulatons shall be allowed only for the bona fide purpose of financing and conducting the business of such licensee.

"The administration of the provisions of this section, so far as applicable, shall be according to the procedure and practice in fixing and regulating the rates, charges, and practices of railroad companies as provided in the act to regulate commerce, approved February 4, 1887, as amended, and that the parties subject to such regulation shall have the same rights of hearing, defense, and review as said companies in such cases.

"In any valuation of the property of any licensee hereunder for purposes of rate making, no value shall be claimed by the licensee or allowed by the commission for any project or project under license in excess of the value or values prescribed in section 14 hereof for the purposes of purchase by the United States, but there shall be included the cost to such licensee of the construction of the lock or locks or other aids of navigation and all other capital expenditures required by the United States, and no value shall be claimed or allowed for the rights granted by the commission or by this act."

You will note that the act provides that as a condition of the license the licensee shall agree to abide by regulation of the State authorities; and, if none, then by regulation of the Federal Power Commission; and this covers both rates, service, and security issues. As the Ford proposal makes no reference to the Federal water power act, then, of course, he will take the project free of the condition mentioned in section 19 of the Federal water power act as to regulation. It will be noted, however, that the power companies expressly agree to take the project under this act, which makes the above provision for regulation a part of their license. This is important to remember, because the Alabama public utility act of 1920 provides for the regulation of public utilities, including lighting and power companies, but section 5 of that act limits the scope of the act, so that it is very doubtful whether Mr. Ford would be subject to regulation. Section 5 reads:

"SEC. 5. *Limitations.*—None of the provisions of this act shall apply to the generation, transmission, or distribution of electricity, to the manufacture or distribution of gas, to the furnishing or distribution of water, or to the production, delivery, or furnishing of steam for heat or power by a producer who is not otherwise a utility, for the sole use of such producer, or for the use of tenants of such producer, nor shall they apply to any person not otherwise a utility who manufactures and supplies such products to a utility for its use or distribution without participation by such manufacturer in such use or distribution. When a person is engaged in business, a portion of which business is private and a portion of which is the business of a utility, the authority, powers, and jurisdiction of the commission conferred upon it by law shall not be deemed to apply to and shall not be exercised with respect to that portion of said business which is a private business."

You will note that the provisions of the act do not apply to a manufacture of electricity by a producer for his own use or his tenants', nor to a person not otherwise a utility who manufactures and supplies such products to a utility for its use and distribution. The Alabama law stops far short of the Federal act as regards regulation of a producer where the energy is sold to another for distribution. Under the Federal water power act, where the power enters into public service, then both the licensee and the utility are subject to regulation, but under the Alabama law in such case the manufacturer—in this case the Ford corporation—would not be subject to regulation if it organized another company to engage in public service or sold to an existinpg public-service com-

pany. No one could force the Ford corporation to deliver power except according to the wishes of the corporation, and then only in the amount it wanted to deliver through a public-service company which it organized.

The Ford corporation has, we understand, opposed the suggestion to come under the Federal water power act because the entire power situation would then be subject to regulation, but is quite satisfied with the Alabama public utility act of 1920 because it will never be subject to regulation except according to the wishes of those who control the Ford corporation.

Mr. McKENZIE. That is the State law?

Mr. McGUGIN. Yes, sir.

Mr. McKENZIE. Your legislature has control of all those matters, but that is not the point I am getting at. You understand that the Ford offer was submitted with section 124 of the national defense act, do you not?

Mr. McGUGIN. Well, I could not answer that question Mr. McKenzie.

Mr. McKENZIE. Let me put it in another way: You understand that the Ford offer has conditions and covenants in it running to the benefit of the Government, such as the maintenance of plant No. 2, for a period of 100 years, to be kept up and, furthermore, that he will engage, during the whole lease period in the manufacture of fertilizer—two propositions that no one ever heard of or ever expected to have in any proposition to come under the water power act, or for power purposes. Is not that true?

Mr. McGUGIN. Well, I understand, Mr. McKenzie, that he is to get title to the nitrate plant No. 2 and that the Government would have the right, of course, to the use of that plant in any national emergency.

Mr. McKENZIE. Yes, and he agrees to maintain that plant for 100 years. If it is destroyed, he has to rebuild it, and all those things. Now the point I want to get at—you want to be fair: you have a name that starts off right [laughter], and I want to be fair about it—I want to ask you this question: Do you feel that the Ford offer and any other offer so far submitted to this committee are on a parity so far as those things are concerned?

Mr. McGUGIN. I have not arrived at the point, Mr. McKenzie, where I feel I can make a detailed comparison of the only offers that I have copies of. But I have understood that, in dollars and cents, the power companies offer to pay more and get less; that the Gorgas plant is eliminated in the power company's proposal; and, if they get the big steam plant at Muscle Shoals they have to pay for it. Now, I have not had called to my attention in Mr. Ford's undertaking any obligations of value with respect to nitrate plant No. 2 and, if he has, I would be very glad to know about it.

Mr. McKENZIE. Let me put it up to you in another way, to get at this proposition. If it is true Mr. Ford assumes those responsibilities, which are covenants running with the contract for the benefit of the country generally and the Government, and which are covenants and conditions not required of anyone taking out a license under the water power act, and he is bound to carry out those conditions under his proposition, do you think it would be fair, do you think it would be proper to apply to him the same conditions of the water power act that are applied to the ordinary lessee under that act?

Mr. McGUGIN. I think, first of all, that the Government should do the thing down there that would insure the use of nitrates in time of war.

Mr. McKENZIE. That does not answer my question. What I want to do is to get rid of this trying to muddy the water here and to see if Mr. Ford's offer is on the same par as that of the Water Power Co., and, therefore, the law governing the water power should apply to Mr. Ford. Mr. Ford has made an offer that is outside and beyond the Water Power Co., so far as the people and the Government are concerned. Now, do you insist that the water power act should apply to him the same as to the ordinary lessee, such as the Alabama Power Co., that comes forward and wants strictly a license to generate power?

Mr. McGUGIN. Without knowing just what Mr. Ford undertakes to do with respect to that nitrate plant, what is the meaning of his obligations, I would say, as a general proposition, that I think that that power down there, exclusive of what is needed for nitrates, ought to be distributed throughout the section.

Mr. McKENZIE. I infer that you have not studied this proposition before you came before our committee, so that you could have discussed it, but I want to ask you this question: Is it not your judgment, and perhaps you know, that the only reason why the Alabama Power Co., or the allied southern power companies, have not made a parallel offer with that of Mr. Ford, is

due to the fact that Mr. Ford's offer carries with it the great burdens which I have just mentioned and, therefore, takes it outside of the ordinary water power license?

Mr. McGUGIN. As I say, I do not know about those things; but my impression is that the nitrate plants were constructed in time of war, and they are adjacent to the river and were completed before the war closed and that the water power itself is being developed by taxpayers' money now by building these dams across the river and that this investment should be considered differently. I do not know what Mr. Ford's obligations are, what they mean to the country with respect to nitrate plant No. 2.

Mr. McKENZIE. You do know this, do you not, that he agrees to pay 4 per cent on the cost of the dam, except in the $17,000,000 that have been expended during the war and before Mr. Ford's offer was submitted?

Mr. McGUGIN. Yes, sir; after a certain period of years.

Mr. McKENZIE. Then he furthermore proposes to put up a fund to return the cost of the plant to the Government. I am not an accountant, but it is stated at the end of the 100 years the Government would be reimbursed for the entire cost of the building of those dams. There are two things, now.

Mr. McGUGIN. I do not understand he agrees to pay anything on the principal cost at all; that he is putting a sum in there——

Mr. McKENZIE. A sinking fund that will take care of the entire cost of the dam at the end of the 100 years and, at the end of the 100 years, the Government owns the dams and that he will have been paying 4 per cent on the money during all those years and, in addition, that—in addition to that—he agrees to maintain the nitrate plant in perfect working condition for 100 years as a defensive proposition—a national defense proposition. Then, in addition to that (and if you will read this offer and if you understand the English language, and I assume you do, if you have been a football player), the language in this bill provides specifically that he must, during the entire lease period, manufacture fertilizer with a nitrate element in it to the amount of 40,000 tons annually.

Now, is that an ordinary water-power proposition? Thinking of that for a moment, now, and then thinking of one of these water-power licensees getting a fine site on some river and building a dam and taking out a license for 50 years and selling the power to the people surrounding there, manufacturers, and so on, without any further thought or concern or care, just purely a simple business proposition, with no covenants binding them for the 50 years, do you think it is fair to compare those two propositions and put them on the same basis, unless Mr. Ford is put under the provisions of the water power act and his lease limited to 50 years which, my good friend, would be against the interest of this Government, rather than against Mr. Ford? And I might say incidentally, we are for the 100-year proposition, because it is not in the interests of the Government to have it for 50 years instead of 100 years.

Mr. WILKINS. I can not agree with you on that. Fifty years is long enough to make any contract.

Mr. McKENZIE. That is, if it is skinning the Government.

Mr. WILKINS. You can not skin the Government. It is your business to see they are not skinned.

Mr. McKENZIE. I think that is all I wish to ask.

Mr. HULL. You are a lawyer?

The CHAIRMAN. Oh, he has already said so.

Mr. HULL. I know; I understand that.

The CHAIRMAN. Then, let us not go into it.

Mr. HULL. I just want to ask a question and I will not take up as much time as the other gentleman; I will not put anything in his mouth. I would like to have your opinion, as a lawyer, on section 14, with subsections (*a*) and (*b*) contained in the McKenzie bill, or in the Ford offer; also the personal guarantee contained in section 20, page 18, of the Madden bill, which is the Ford offer. I do not think there will be any objections to having you thoroughly go into that and file an opinion that could go into the record, in the next two or three days.

Mr. WRIGHT. I object to that unless he can be cross-examined.

The CHAIRMAN. Mr. Hull, I think if you will ask your questions and proceed in the direct way, we will get through quicker.

Mr. HULL. All right.

The CHAIRMAN. The trouble is here, the members of the committee seem to be explaining what they think about it. It is time enough to go into that in executive session.

Mr. HULL. There is no explanation here at all.

Mr. MCGUGIN. Section 14, with respect to the manufacture of fertilizer?

Mr. HULL. Yes; section 14, on page 10.

Mr. MCGUGIN. Well, it appears to me under this section the company agrees continuously, subject to some enumerated possible causes of interruption, to manufacture fertilizers having a nitrogen content of 40,000 tons, using the most economical source of power available. The company agrees to restore the plant No. 2, if it is destroyed or damaged. Under the subsections, the company undertakes certain obligations with respect to experimenting in an effort to determine whether a commercial fertilizer can be produced by means of electricity and chemistry and, in subsection (*b*), it seems to me that the company agrees to maintain this nitrate plant No. 2, in its present state of readiness, or its equivalent, for the demands of war.

Mr. HULL. Well, then, in your opinion subsection (*a*) and subsection (*b*) neutralize the first part of the section; that is the entire section is predicated on subsections (*a*) and (*b*), is it not? Is that right, as a lawyer?

Mr. MCGUGIN. I believe so. A colon is used; it is part of the same sentence. Subsections (*a*) and (*b*) are parts of the same sentence.

Mr. MCSWAIN. Mr. Chairman, I am only a new member of the committee, but I declare I do not think we are making any progress and it does not seem fair to this gentleman to be bothering him with any such question as that.

The CHAIRMAN. Let him answer the question and then we will see just where we stand.

Mr. MCGUGIN. I have been undertaking to read all of the documents I could get hold of. One I had in mind with respect to this was the statement the Secretary of War made in the record that Mr. Ford had stated to him he did not intend to make fertilizer unless he could make it at a profit. I expected that was the meaning of his contract and think that sort of a statement made at the same time might have some sort of a bearing on his contract, if made by Mr. Ford as to what he thinks it means. But I do appreciate the suggestion of the gentleman here (Mr. McSwain) that it is embarrassing to me to attempt to answer these questions. I will undertake to answer the other one.

Mr. HULL. I would like to have you do it or, if you are not prepared, you can say so.

Mr. MCGUGIN. What is the other one?

Mr. HULL. On page 18 of the Madden bill is the personal guarantee of Henry Ford, so called. I would be glad to have you answer that, if you care to; if you are not prepared, say so.

Mr. MCGUGIN. I have already looked at that and the thing that came to my mind was whether that meant that Mr. Ford's personal fortune was behind this thing, or whether it was not.

Mr. HULL. Yes.

Mr. MCGUGIN. I came to the conclusion that it was not, except to the extent of undertaking to comply with the obligations that had been enumerated; that is, the organization of the corporation of $10,000,000. That is my impression about it.

Mr. HULL. That is all.

Mr. JAMES. Mr. McGugin, I understand from your statement that you have conducted quite an extensive referendum down there on the Ford offer?

Mr. MCGUGIN. No, sir; I did not mean to leave that impression. I have only been working on this thing about 10 days.

Mr. JAMES. What were they; farmers, lawyers, or manufacturers?

Mr. MCGUGIN. They were mostly people around Nashville, mostly merchants and possibly some manufacturers. I did it mostly around the commercial clubs.

Mr. JAMES. And did all the men around the commercial clubs admit now they had not read the offer?

Mr. MCGUGIN. That is right.

Mr. JAMES. And you proceeded to tell them the way you understood it?

Mr. MCGUGIN. I just asked them those questions.

Mr. JAMES. You told them there was no fertilizer offer in the Ford proposal?

Mr. MCGUGIN. No. I wrote out these questions and I asked them—the question I asked them on that was whether they understood he does not guarantee to produce fertilizer and to sell at a price either above or below present cost.

Mr. JAMES. Of course, you know that is not true?

Mr. MCGUGIN. No, sir.

Mr. JAMES. There is no such provision in section 14, if you will analyze it.

Mr. McGugin. The point I had in mind was I could not find any assurance in his offer that fertilizer would be manufactured and sold any cheaper than it was now being sold.

Mr. James. You read section 14. You also gave those gentlemen to understand Mr. Ford did not pay anything except 4 per cent on the investment?

Mr. McGugin. So far as water power——

Mr. James. You did not tell them anything about amortization or anything of that kind; you did not know anything about that?

Mr. McGugin. No; I did not mention that; no, sir.

Mr. James. And you told them Mr. Ford's entire fortune was not in back of the offer?

Mr. McGugin. Yes, sir; that is my impression about it.

Mr. James. You did not tell them that the entire assets and resources of these nine affiliated companies were back of their offer, did you?

Mr. McGugin. No, sir.

Mr. James. You do not think they are?

Mr. McGugin. I think not.

Mr. James. Did you ask any of those 50 gentlemen whether they had read the affiliated companies' offer?

Mr. McGugin. I think I did some of them.

Mr. James. Had they read that?

Mr. McGugin. None of them had read it. They all said they had read the headlines in the newspapers.

Mr. James. But they had not read the offer itself?

Mr. McGugin. No, sir; they had not.

Mr. Quin. Mr. McGugin, I just want to know: Do you think on the 31st day of February next the Milky Way is going to be obscured or is going to be clear? [Laughter.]

Mr. Garrett. Mr. McGugin, I want to ask you a question here which I think is pertinent and I appreciate your position, as a lawyer, not having examined these things in detail, that you should not be called upon to express an opinion, and I shall not ask you to do that. There is a question I want to ask you, with which I think you are familiar as a fundamental proposition: Under the laws of Tennessee and Alabama and of the States generally, where a corporation is organized for a specific purpose, for instance, the generation of power as all of these power companies are organized, to ask you, as a lawyer, if you think that a corporation organized for the purpose of the manufacture and distribution of power, can organize a subsidiary corporation to be engaged in an entirely different business from that of the parent corporation and guarantee the faithful performance of the subsidiary corporation's acts and bind the stockholders, by that guarantee, of the parent corporation?

Mr. McGugin. Well, that is a complicated question.

Mr. Garrett. Just as a general question of corporation law?

Mr. McGugin. No, I would say, as a general proposition, we do not have any statutory authority to authorize that.

Mr. McSwain. Mr. McGugin, as a fair lawyer, now and as a man, you are convinced that under this Ford proposition it is provided, in addition to the 4 per cent interest on the investment, that a fund shall be put up annually in the nature of a sinking fund to amortize the total cost?

Mr. McGugin. Well, I see this proposition of $19,868.

Mr. McSwain. That is as to Dam No. 3, is it?

Mr. McGugin. As to Dam No. 2, I think.

Mr. McSwain. All right; Dam No. 3 has the same provision.

Mr. McGugin. $3,505.

Mr. McSwain. Yes, a different amount.

Mr. McGugin. I did not construe those as payments on the investment.

Mr. McSwain. You did not understand they were to amortize the investment—to provide a sinking fund to amortize the cost of Dam No. 2?

Mr. McGugin. No.

Mr. McSwain. You understand that is what it means——

Mr. Reece. Not the entire $17,000,000?

Mr. McSwain. Not the entire $17,000,000, but every dollar that goes in Dam No. 3 and every dollar that goes in Dam No. 2, except the war time investment of $17,000,000 will be amortized by that fund. Now, if that is so (and I think we can fairly say that is so) then at the end of 100 years the Government will own Dam No 2 and it will not have cost the Government one cent, will it, and it will have received 4 per cent on the investment during the 100 years?

Mr. McGUGIN. If those sums were sufficient to provide a sinking fund, yes.

Mr. McSWAIN. If the actuary used his mathematics right, that is true, is it not?

Mr. McGUGIN. Yes, sir.

Mr. McSWAIN. Now, will you also, on your way home, as a matter of fairness to your constituents and your clients, consider that there are four different ways of retaining Federal control over this water power, even if the Ford offer is accepted, to wit, the reserve power of Congress, which can not be exhausted by one legislative act; 2, a provision that the Department of Agriculture shall have its representatives there in the fertilizer and nitrate plants; 3, that any other Federal officer, to wit, the engineers of the Army or other Federal officer, shall, at any time, have the right to inspect; and, 4, that the Federal courts, by section 18, are expressly given the power, by mandamus or injunction, or other adequate processes, to carry out the provisions of the act, and, if they are violated, forfeit and recover the property for the Government?

Mr. McGUGIN. I will be glad to go into anything the committee desires.

Mr. BOYLAN. I would like to ask the gentleman a question: Does it not seem peculiar to you, according to your statement, the Southern power companies have pursued a Rip Van Winkle state of mind for the past 100 years and they have only awakened now to activity through the offer of Mr. Ford?

Mr. McGUGIN. Of course that is true, they have not developed there. I would like to ask this, though, if it is known: I noticed in the record that the Alabama Power Co. did own the dam sites and gave them to the Government at the time of the war. Do you know whether that is true, or not?

Mr. BOYLAN. I do not know.

Mr. McGUGIN. Were not these voluntarily given to the Government, without consideration, in time of war? I was interested in that, really, to find out whether they had had any plans developed there, just out of curiosity.

Mr. BOYLAN. To your knowledge, no offer was ever made by any of those companies or no effort was made by any of those companies to utilize or to try to get control of this pwer?

Mr. McGUGIN. I never heard of any offer of any kind, at all.

Mr. HILL of Alabama. Mr. McGugin, I believe you said that, after all, the basis of your objection to the Ford offer would be the fact that he is going to use that power for himself and not to distribute it to the territory surrounding, to a very large extent?

Mr. McGUGIN. Well, that is true, with this objection: I believe, it is my impression, that many Tennessee manufacturers, and some of the municipalities in Tennessee are anxious to get power. They would like to have that power sold under regulation and not be subject to the menace of Ford or anybody else who get it for their own purpose without any restriction and at a very low cost?

Mr. HILL of Alabama. Do you know that he will get it at a very low cost?

Mr. McGUGIN. I do not know whether the cost will be exceedingly low or not, but I understand it will.

Mr. HILL of Alabama. Would not this same contention of yours have applied fundamentally, basically, two years ago?

Mr. McGUGIN. Yes, sir, it would.

Mr. HILL of Alabama. But you all said nothing about it two years ago?

Mr. McGUGIN. Not a word.

Mr. HILL of Alabama. It was not until two weeks ago, when the Tennessee Electric Power Co. came in and made an offer jointly with the Alabama Power Co., that you all got stirred up over this thing?

Mr. McGUGIN. That was the first interest I took in it.

Mr. HILL of Alabama. That was the first interest you took in it, when the Tennessee Electric Power Co. made a bid?

Mr. McGUGIN. The first real interest I took in it was when Mr. Edgerton asked me to do so.

Mr. HILL of Alabama. Shortly after they made a bid?

Mr. McGUGIN. Shortly after they made a bid.

Mr. HILL of Alabama. The Tennessee Electric Power Co. furnishes the manufacturing people of Tennessee with their power?

Mr. McGUGIN. Yes, sir.

Mr. HILL of Alabama. I dare say much of the stock of the Tennessee Electric Power Co. is owned by the different manufacturers of Tennessee?

Mr. McGUGIN. I do not know about that. I know it is owned a good deal by the people there in Nashville.

Mr. HILL of Alabama. The people of Nashville own a good deal of their stock?

Mr. MCGUGIN. Yes, sir.

Mr. HILL of Alabama. They are big-interests people; they are big-business people, are they not?

Mr. MCGUGIN. I really have not the slightest opinion. The ones I know are clients of mine. I know Mr. Withens owns stock. I do not know whether he owns any considerable amount.

Mr. HILL of Alabama. You do not know how much of the big interlocking big-business interests there is?

Mr. MCGUGIN. No.

Mr. HILL of Alabama. You would not say there was not any?

Mr. MCGUGIN. No; I would not.

Mr. HILL of Alabama. Now, you are a lawyer, I believe, Mr. McGugin?

The CHAIRMAN. Oh, yes; he said so a half a dozen times. [Laughter.]

Mr. HILL of Alabama. He told us, also, he was a football coach, Mr. Chairman.

The CHAIRMAN. Yes; he also said that a half a dozen times. Now, understand, I do not want to complain; I simply want to save time.

Mr. HILL of Alabama. I understand the chairman thoroughly; he wants to expedite this examination.

The CHAIRMAN. Exactly.

Mr. HILL of Alabama. If a corporation you were representing were negotiating to make a contract with another corporation, and the other corporation was in danger of having its charter revoked, would you advise your client corporation to make that contract?

Mr. MCGUGIN. Well, probably not; not to depend on its right to sue.

Mr. HILL of Alabama. Probably not?

Mr. MCGUGIN. Yes, sir.

Mr. HILL of Alabama. Now, Mr. Chairman; in this connection, I have here two clippings from two Nashville papers that, to my mind, bear directly on the proposition we have before us and I would like to read them into the record.

The CHAIRMAN. I think it is almost 12 o'clock, and I hope you will put them into the record.

Mr. HILL of Alabama. If the committee would just as soon have them printed in, that is all right.

The CHAIRMAN. Yes.

Mr. HILL of Alabama. I only want them in the record; that is all.

The CHAIRMAN. There is no objection; it is so ordered.

(The clippings referred to are as follows:)

[Nashville Banner, January 14, 1924.]

POWER FIRMS GO ON TRIAL—STATE'S COMPLAINT AGAINST INTERLINKED PLANTS BEING HEARD BEFORE JUDGE NEWMAN—DEFENDANTS CONTEND CONSOLIDATED SYSTEM IS NECESSARY FOR ECONOMY, EFFICIENCY, CONTINUITY—STATE BOARD SETS PRICE.

Trial of the antitrust suit filed by the State against the interlinked power companies of middle and east Tennessee was begun this morning before Chancellor James B. Newman in part 2 of the chancery court, with a notable array of legal talent present. Attorney General Frank M. Thompson is assisted by Joe V. Williams, of Chattanooga, while the defendants' counsel include W. E. Norvell, jr., and J. M. Anderson, of Nashville; J. S. Clark and Percy H. Clark, of Philadelphia; Brown & Spurlock, of Chattanooga; and J. A. Fowler, of Knoxville.

The defendant companies, charged with violating the antitrust statutes and the common law of Tennessee, are the Nashville Railway & Light Co., Chattanooga Railway & Light Co., Chattanooga & Tennessee River Power Co., Tennessee Power Co., and Tennessee Electric Power Co. The Tennessee Railway Light & Power Co., a Maryland corporation that served as a holding company during part of the period of consolidating the various steam and hydroelectric properties, is another defendant, as is the Nashville Trust Co., which acted as depository of the merging concerns in stock transactions.

The Tennessee Electric Power Co. is the controlling corporation in the group of defendant concerns, it having acquired a controlling interest in the stock of the Nashville Railway & Light Co. and having purchased last year the physical properties of the other corporations involved.

The opening session was consumed with the reading of the State's bill of complaint and the defendants' answers. The State asks that the charters of the defendant Tennessee corporations be revoked and the foreign concerns forbidden from doing business in Tennessee.

The bill of complaint, read by General Thompson, stated that the Tennessee Power Co. was organized in 1912 by E. W. Clark & Co., of Philadelphia, and associates, and built hydroelectric power plants at Rock Island and on the Ocoee River, and that the Chattanooga & Tennessee Power Co. formed the Tennessee Railway Light & Power Co., a Maryland corporation, it is charged, and turned over to it a controlling interest in the stock of the Nashville Railway & Light Co. and the Chattanooga Railway & Light Co. which the Clark group had acquired.

It was further set forth that the Tennessee Power Co., suffering from competition with the Hales Bar plant of the Chattanooga & Tennessee River Power Co., entered into a 20-year contract with the latter company by means of which virtually complete control of the Hales Bar properties was acquired.

Following this, the State contends, the Tennessee Power Co. entered into advantageous contracts to take over the steam plants of the Nashville Railway & Light Co. and the Chattanooga Railway & Light Co., and to sell the two companies electric current to supply the needs of their customers and to operate their street railways. It is charged that the same syndicate, or "Clark interests," had control of the two railway and light companies and the Tennessee Power Co. as well, and that the contracts favored the power company.

FILE EXHIBITS.

Exhibits were filed by the State showing that memorandum agreements were made between the Tennessee Power Co. and the street railway and light companies of Nashville and Chattanooga, fixing the rates to be paid the power company for current delivered at their receiving stations. The rate was gradually increased from 6 mills per kilowatt hour in January, 1918, to 10 mills or 1 cent per kilowatt hour in June, 1920.

It is also charged that as a result of these alleged manipulations, the stock of the Nashville Railway & Light Co. declined sharply, and that no dividends were paid on the preferred stock from 1920 until the filing of this suit in August, 1922, the profits of the Nashville company being absorbed in the rates charged by the Tennessee Power Co. for current.

It is charged that the various companies concerned had in interest and in legal effect violated the antitrust laws of the State and brought about increases in prices charged street-car patrons and consumers of the electric current. It was shown that a similar plan had been carried out in Chattanooga.

At this point the bill takes up the organization of the Tennessee Electric Power Co., the plans of which were made public on April 10, 1922. An advertisement of the Tennessee Railway, Light & Power Co., E. W. Clark & Co., and associated banking interests were read declaring that it was the intention of the Tennessee Electric Power Co. to acquire the securities and physical properties of the Tennessee Power Co., Chattanooga & Tennessee River Power Co., Chattanooga Railway & Light Co., and the Nashville Railway & Light Co.

This has been accomplished, except that the Nashville Railway & Light Co. still owns its physical properties.

CHARGES MONOPOLY.

This plan, the attorney general contends, contemplates a "gigantic monopoly" and is "unlawful and contrary to public policy." The strong arm of the State should prevent it, in common justice and for the public welfare, the bill of complaint sets forth. It contemplates the stifling of all competition in the distribution of electric power, which has become a necessity of the modern social and industrial State, and affects the interests of a half million citizens it is charged.

Demurrers filed by the defense were read by Mr. Norvell, denying the essential allegations of the State and also attacking the constitutionality of the antitrust statute.

Judge Anderson read the joint separate answers of the defendants. It was shown that a majority of the board of directors of the Nashville Railway & Light Co. are prominent Nashville business men, and it was denied that the local company had been "milked" by the Tennessee Power Co. The suspension of preferred stock dividends had been by the State railroad and public utilities commission, and the stock had not declined as severely as that of the Tennessee River Power Co. during the pre-war and postwar crises, it was contended.

[Nashville Banner, January 17, 1924.]

POWER MERGER TRIAL NEAR END—PROOF FINISHED AND ARGUMENT OPENED IN ANTITRUST CASE—THREE ATTORNEYS HEARD—DEBATE QUESTION WHETHER ELECTRICITY IS A MANUFACTURED COMMODITY—DECISIONS CITED.

DEFEND CONSOLIDATION.

The introduction of proof was finished and argument of counsel opened this morning in the Power Antitrust case on trial before Chancellor James B. Newman. The court granted the attorneys two days for argument, the time to be equally divided between the State and the defendant power companies.

The State introduced evidence at the opening of to-day's session showing the merger of the power concerns into one corporation, the Tennessee Electric Power Co., was objected to in advance by the Ducktown Sulphur, Copper & Iron Co. (Ltd.), on the ground that it would forever stifle competition in the distribution of power in east Tennessee. The company's counsel asked that it be given an opportunity to appear at the utility commission's hearing on the petition for approval of the merger, but the hearing was held and the request approved without notification, it was alleged.

TWO PRIMARY QUESTIONS.

Judge John V. Williams, of Chattanooga, opened the argument for the State. He said there are two primary questions involved in this case; that is, whether the antitrust act of 1903 applies to an article like electricity, and whether the passage of the utilities act of 1919 is an implied repeal of the antitrust statute as affecting the public utilities.

It is the contention of the State, he said, that electricity as distributed by electrical concerns is a manufactured commodity. Lightning is a natural force, while current generated by machinery, labor, coal, etc., is a commodity in trade, he asserted. An opinion of the Alabama Supreme Court was cited in which artificially generated electricity is defined as a manufactured product. Similar legal citation of the difference between natural lake ice and manufactured ice was given in explanation of the distinction between products in the natural and manufactured state.

Practically all States have statutes making the theft of electric current larceny, he said, treating it as a commodity.

Taking up the second proposition, Judge Williams read a Tennessee Supreme Court decision declaring it illegal for a holding company to hold securities of certain public utilities for the purpose of controlling them and preventing competition, and declared this opinion was responsible for the fact that the Clark interests organized their holding company, the Tennessee Railway Light & Power Co., under the laws of Maine and failed to qualify to do business in Tennessee. The State charges, however, that the holding company did do business in this State, through its ownership of the stocks of several once-competitive power corporations, he said.

READS UTILITY ACT.

The act creating the public utilities commission was read, in part, and the fact pointed out that nothing is said of any authority being conferred upon the commission to deal with trusts, monopolies, or combinations of utility companies.

Judge Williams said there is a similar situation in the Federal law, involving the antitrust law and the commerce act of 1887, and that the United States Supreme Court had emphatically held that the railroads are fully subject to the Federal antitrust law, notwithstanding the regulatory power vested in the Interstate Commerce Commission. The antitrust law was held to be a general law, and the commerce act a special law, he said, and there is no implied repeal.

The State constitution forbids the exemption of one class of individuals from the provisions of a general law, said Judge Williams. The legislature has no right to exempt hydroelectric companies or any other class from the general law against trusts, and therefore there can be no valid implication to such an exemption of public utilities in the passage of the act creating the railroad and public utilities commission, he said.

The Clark interests have occupied the position of promoters in the public-utility field in Tennessee, said Judge Williams. According to the testimony, E. W. Clark & Co. and members of the Clark family own very little of the securities of the various companies, he said, but it might be interesting to know

what amounts they have drawn from the corporations in the form of salaries, fees, and commissions for promotion, engineering plans, supervision, stock sales, etc. He said the most essential need of the public utilities act is an amendment that would make it possible to regulate and bring to light the amount of salaries and promotion fees paid officials of the public utilities.

Judge Williams closed with a statement of the importance of restricting corporations in the stifling of competition, and a prediction that the people of Tennessee will in the future suffer great disadvantages and exploitation if in this case a curb is not placed on consolidations.

The CHAIRMAN. I have received and had handed to me two or three telegrams, which it might be well to place in the record at this time.

(The telegrams are as follows:)

MOBILE, ALA., *January 28, 1924.*

Hon. LISTER HILL,
Member Military Affairs Committee, House of Representatives,
Washington, D. C.:

Am wiring chairman of your committee giving him some facts in reference to Mayor Taylor's appearance before the committee on Saturday last. You may use this information in any way it will serve Mr. Ford's interests best.

HARRY T. HARTWELL, *Commissioner.*

DETROIT, MICH., *January 28, 1924.*

Hon. JULIUS KAHN,
House of Representatives, Washington, D. C.:

In reply to your telegram that some members of the Military Affairs Committee desire to ask me some questions and suggesting that I appear before your committee or send a representative empowered to speak for me, and especially in reply to your own statement that you wish to give us "a full opportunity to explain your offer," I respectfully submit to your consideration the following: Invitations for bids for Muscle Shoals were asked for by the Secretary of War in April, 1921, and transmitted to Congress by him in February, 1922. Your committee has therefore had our proposal before you for practically two years. Mr. Mayo, our representative, has appeared before you on numerous occasions and every phase of our offer has been fully inquired into and explained. Your committee has heretofore reported to Congress two bills providing for the acceptance of our offer. I know of nothing that we can add that would be helpful to you. Further hearings would only serve to delay action and unnecessarily consume the time of a busy and important committee of Congress already in possession of all the facts.

HENRY FORD.

MOBILE, ALA., *January 28, 1924.*

CHAIRMAN HOUSE MILITARY AFFAIRS COMMITTEE,
Washington, D. C.

I want it thoroughly understood that Mayor R. V. Taylor's appearance before your committee on Saturday last in opposition to the acceptance of the Ford offer by Congress was not with the official approval of our commission nor does he voice the sentiment of the majority of the people of this seaport, his statement being wholly of his own initiative. It may be of interest to your committee to know that the following resolution was unanimously adopted by our body, date of February 21, 1922, Mayor Taylor voting in the affirmative, so I am at a loss to understand his change of heart:

"Whereas much discussion and agitation has developed from the fact that the Alabama Power Co. has submitted a bid to our Government for Muscle Shoals; and

"Whereas there is a chance for delay in this matter being settled by Congress due to this fact; and

"Whereas there is much merit in the proposition as submitted by the Hon. Henry Ford; and

"Whereas the development of this property was first brought to the attention of the American people by Mr. Ford: Therefore be it

"*Resolved, by the board of commissioners of the city of Mobile,* That they heartily indorse the Ford project and urge the Alabama delegation to support Mr. Ford in the fullest measure; and be it further

"*Resolved*, That a copy of this resolution be sent to Hon. Henry Ford and to each member of the Alabama delegation in Congress."

The great majority of the people of Alabama are heartily behind Mr. Ford's offer and I urge upon you the acceptance of his bid for the development of Muscle Shoals. I ask that my wire be read to your committee and be made a part of the record.

HARRY T. HARTWELL, *Commissioner.*

OPELIKA, ALA., *January 28, 1924.*

Hon. HARRY HULL AND COMMITTEE ON MILITARY AFFAIRS,
Washington, D. C.

Our newspaper representing farmers of several counties is on record with your committee favoring the Ford proposal provided he made it be specific as to Ford making cheaper fertilizers. As he has not done so we desire to state that we favor the bid of the power companies for leasing the shoals properties. Consider their bid much best yet made especially as to improving chances for cheaper fertilizers. Our opinion is nitrate plant No. 2 processes do not show promise of cheaper fertilizers only possible more fertilizer material. Some development Haber or other process plant No. 1 has possibilities and probabilities for making nitrogen cheaper. Believe some process to procure nitrogen at less cost than now possible only hope for farmers to benefit. Power companies proposal of million dollars for research and experts being named in proposal means something definite along that line especially as Government departments are to supervise. Paragraph (*a*) section 15 Ford proposal on research means nothing. It has no promise as to how much or little investigating and experimenting will be done. As to disposal surplus power from Shoals plant we favor general distribution so that industries in our section of State could be served rather than Ford's own factories only. No concern should have Shoals plant for longer period than 50 years and unless cheaper fertilizers are assured Government should complete plant and sell power to some concern for general distribution. Your committee should not allow few politicians and promoters to prejudice it against Alabama Power Co. That concern is giving Alabama cheaper power than any other State enjoys and has the confidence of the people. Please get cheaper fertilizer in any contract made.

OPELIKA DAILY NEWS.
W. T. WEAR, *Editor.*

(Thereupon, the committee took a recess until 2 o'clock p. m.)

AFTER RECESS.

The committee reconvened pursuant to the taking of recess, Hon. John C. McKenzie presiding.

Mr. MCKENZIE. Gentlemen, we have present this afternoon three witnesses, Mr. H. H. Frasier, secretary of the Chamber of Commerce of Selma, Ala.; Mr. W. B. Folmer, of Troy, Ala.; Mr. R. J. Ingalls, of Birmingham, Ala.; we also have with us Mr. E. H. Hooker, who has submitted a proposition of his own.

We will now hear from Mr. Frasier.

STATEMENT OF MR. H. H. FRASIER, SECRETARY OF THE CHAMBER OF COMMERCE, SELMA, ALA.

Mr. FRASIER. I am secretary of the Chamber of Commerce of Selma, Ala.; I am also manager of and principally interested in one of the largest farming interests in Dallas County. I am also a member of the Farm Bureau Federation, although I am at this time not speaking for the Farm Bureau Federation. I am expressing my own views, so far as that organization is concerned.

One of the gentlemen who appeared here this morning referred to the members of the Farm Bureau Federation as the rich organization. If there is a member of the Farm Bureau Federation who is rich, why he must have had an unconditional lease on the resources of some bank for at least 100 years, and we members of the Farm Bureau Federation would appreciate his telling our bankers we are rich, so that we can get the much needed money we want.

At the outset, gentlemen, I want to say that we are interested in the Muscle Shoals proposition from the standpoint of the industrial and agricultural development of Alabama and such other States as that power can reach. We realize

that the common wealth there is the best basis for individual prosperity and that if the farmers of Alabama are to be prosperous or the people of Alabama are to be prosperous, it is necessary that the other States enjoy an equal amount of prosperity.

There are two proposals before you at this time, if I understand correctly, under one of which regulation is involved and under the other it is not. While our interest primarily is in the agricultural and industrial development of Alabama and adjacent States, I want to say that we put that interest ahead of any proposition or any group of people making a bid for Muscle Shoals. That is the thing I am here to talk with you about and the thing which I hope I can impress you with.

The power companies, and public utilities, propose to use the power for public distribution. They want the power only for one purpose, namely, for sale. Now, gentlemen, down in our section of the country we need that power. Some of you, I am sure, will ask me if we have not already got power, and I am going to anticipate that question and say that we have already got power. But we have not got power to last over a period of years and we are not looking after the present time; but, under the terms of one of the contracts that is proposed, we have got to make provisions for 100 years. And I do not believe that there is adequate power available for Selma and south Alabama for anything like that period, without the use of Muscle Shoals in that territory.

Mr. Ford wants this power for his use alone and solely, with the exception of that part used for the manufacture of fertilizer; or, at least, that is what I glean from reading his proposition. I do not see where he has suggested to sell one particle of that power to other sections of Alabama and to other States that do now, and will more as time goes on, badly need it.

Another thing, gentlemen, that we are opposed to, and bitterly opposed to, is the fact that there are no restrictions or control over Mr. Ford after this power is turned over to him, with one exception, and that is that he must use a part of it for the manufacture of fertilizer.

Now, gentlemen, this power belongs to the people, and we are not willing for our agents to give that power over to any one person, corporation, or individual for a long period of years with absolutely no restrictions. I do not want, gentlemen, my grandchildren, if I should have any, to have to take with every 10 tons of fertilizer a Ford car and with every 50 tons a Lincoln automobile. Of course, Mr. Ford, if he should enter into a public utility business in the State of Alabama, would come under the control of the public utility act of that State. He has not expressed any intention to go into the public utility business.

My observation, gentlemen, of the power development in Alabama has been that industries and agriculture have developed along with the development and distribution of electric power. If any of you are familiar with conditions around there, you can trace the agricultural development and the industrial development and you will find that the two have gone together with the electric development in that section, and we believe that the industrial and agricultural development are only going to go along with and not ahead of the electric development. The power that we have there now is pretty well distributed all over the State. Wherever electric power is available now industries are going up. The people are taking an interest in industrial development. The local people are taking an interest in it; the people of Selma to-day are planning to organize a furniture factory, and I know well they would not have that thing in mind if it were not for the fact we have at present some electric power. Just how long that power is going to be available we can not tell.

This Nation, gentlemen, if I remember correctly, has been in existence about 150 years. You propose to give, or Mr. Ford wants you to give—I won't say you propose, because I do not believe you do—but Mr. Ford wants you to give the use of that vast potential power there at Muscle Shoals to him for a period of two-thirds as long as this Nation has been in existence. Think of the wonderful progress we have made, gentlemen, during that 100 years. Suppose we develop half as much, in proportion, during the next 100 years as we have up to this time. What are going to be the new conditions, requirements, etc., of the people at the end of that 100 years, or at the end of 50 years? You can not tell. And he has it unconditionally, if this proposition is accepted, and what recourse have you?

At the time this proposition by Mr. Ford was made, the farmers of Alabama and adjoining States were in a rather deplorable condition. They needed assistance and they were willing to grab at anything, and when Mr. Ford came out and offered this panacea, they grabbed at it as a drowning man will grab at a

straw, and they were willing to be led out into the wilderness and many politicians followed behind them, and we were lost in the wilderness. But I know to-day, gentlemen, they are changing their minds; they realize they can not profit by fertilizer unless they have a market at immediate hand. We can, with the present condition of fertility in America, with a moderate control of the boll weevil, produce enough stuff to flood the markets with the staple crops. What we need is the opportunity, gentlemen, to grow something besides cotton, corn, wheat, and the staple crops. We need an opportuuity to produce vegetables, to produce fruit, to produce poultry, to produce eggs, that we can carry in to town on the morning they are gathered and put them on the employees' tables. Wherever in America that condition exists, you will find the farmers are in good condition, you will find the lands are high, you will find that the farmers are prosperous. But down in my section, gentlemen, they may carry a basket of tomatoes into Selma and flood the market. They preach diversification; that is what we need, but you can not diversify without a market.

I have asked 100 men why they do not plant something else besides cotton. They say, "Where will we find a market for it?" If this power is distributed equally throughout the Southern States, cities will grow up in the neighborhood, and the farmer in the territory will have a market for his crops, and he will be able to do business on a well-rounded business basis, and a period of prosperity will come. But it is not going to come by putting at Muscle Shoals one large, tremendous town. Those products, Mr. Chairman, can be shipped from there, but you will find it is a difficult proposition to get together from a large number of small farms carload produce to ship out, and to market their products profitably they must have a market at hand, and they can not do it without the power for Selma.

I think the people of North Carolina, South Carolina, and Tennessee, and as far as that power line has reached to-day, have their money invested in it, and they, as well as the people of Alabama, should have it. And the only way to have it is to let the power be distributed there and use it in their neighborhood, so that they will have a market provided at hand for their produce.

The farmers are changing; they are coming to a realization of the fact that fertilizer alone will not bring about a panacea. Without a market this needed fertilizer will be of little avail to the agricultural industry in Southern Alabama; but with a market it will be a splendid investment for the farmers. There might be some farmers now who would not approve of your adopting the proposition of some organization that would spread this power out all over the Southern States; but in a few years the results would vindicate your action. And if those few farmers who are now grabbing at a straw go under, they are pretty certain to carry somebody under with them.

I am speaking, gentlemen, from observation. I was reared on the farm; I have studied agricultural conditions; I have read a great deal and studied from first-hand, and I know cheap fertilizer alone, without a market, will not bring about a condition which you want to bring about for the farmer. I know you want to help the farmer; that is the thing you have uppermost in your mind. You want to do all you can; you are too eager to do something that will help the farmer; you are so anxious to help the farmer that you are willing to accept the thing you think will help him (I won't say "you are willing to accept it," but you might accept it), when it really won't help him.

If you will study and analyze this situation and get your farmers, your own constituents to study and analyze it, I will bet you that 99 per cent of your farmers who are men of some education and are practical business men will agree with you that this power should be distributed so that the farmers other than those adjacent to Muscle Shoals will have a market at their door. I have asked a number of farmers recently how they were on the proposition and they all said they knew nothing about it. Coming up on the train Sunday night, I went from Pullman smoking car to Pullman smoking car, asking people, casually bringing up the subject, if they had looked into it. They said they knew absolutely nothing about it. It is purely a matter of education and if you want to do something really worth while for the farmers and, at the same time, have this power under the control and supervision of the public utilities commissions, so that the farmer can not be oppressed by Ford and the other people who have submitted bids, so that those who have their money invested in it will have an equal share in the benefits, why then you will adopt methods that will distribute that power throughout the whole South and develop the whole South equally.

Mr. McKenzie. As I understand, you are opposed to the Ford proposition on two grounds; principally, first, that he is getting control of this great water power subject to no regulations?

Mr. FRASIER. Yes, sir. I understand now that there is, away up at the top of the ladder, probably with Congress, or after considerable effort, there might be some method to regulate him. I doubt its ever being done. I heard some one state this morning that Congress might have some power, but I do not see how they can.

Mr. MCKENZIE. However, you will concede the contract would control that matter?

Mr. FRASIER. I say that the contract turns it, as well as the two plants, absolutely over into his hands.

Mr. MCKENZIE. Of course, what I mean is, Mr. Ford would be subject to the provisions of the contract, whatever that contract might happen to be.

Mr. FRASIER. Yes. I would like for you to keep——

Mr. MCKENZIE. I do not want to question you on that subject; I simply want to call to your attention the fact that the contract and the provisions in the contract, of course, will bring Mr. Ford under such regulations as are provided in that contract, and I can not let the statement pass, that you make, that he is under no regulation.

Mr. FRASIER. What regulations are provided in that contract with regard to the nitrate plant No. 2?

Mr. MCSWAIN. We are not here to be questioned; we want information, if you have any.

Mr. MCKENZIE. The contract speaks for itself. I just wanted to bring that out. That is one of your objections, as I remember. Your other objection, as I understand it, is that you prefer to have this power used at Selma, Ala., rather than at Muscle Shoals, Ala.?

Mr. FRASIER. No, sir; I did not make such a statement.

Mr. MCKENZIE. That is the meaning of it.

Mr. FRASIER. No, sir; that is not the meaning. We do not come here, and I stated at the outset, when I started to discuss this thing, that it was not from the local standpoint; that we were trying to study if from the standpoint that will benefit the greatest number of people, because the common welfare is the basis for individual prosperity. We could not, under any condition, say we wanted this power devoted only to Selma, Ala., because the people of other States have just as much right to it and to benefit by it as we have.

Mr. MCKENZIE. That is the way the committee thinks about it; but, from your statement, I take it you meant to have this so arranged that the farmer could sell tomatoes in Selma, Ala., instead of selling them at Muscle Shoals.

Mr. FRASIER. I used that as an illustration for the Selma farmers. The same thing would apply to North Carolina, to South Carolina, Georgia, Tennessee, Alabama, and the other southern States.

Mr. MCKENZIE. Is it not true that power is of no use until it is put through some factory or turned on some plant that will give light to the people or used up in some manufacturing process?

Mr. FRASIER. I am glad you brought that out. I have on my plantation four gasoline engines giving me very considerable trouble and operated at a terrific expense. On the farm electric power could be used very beneficially for a very large number of purposes, and the purposes for which it could be used are constantly increasing, and the farmer would increase them as the power became available at prices at which he could use it.

Mr. MCKENZIE. The point I want to bring out is the manufactured product; the finished product that reaches the consumer, is the thing that the people of the country are principally concerned about and, to the great mass of the people, whether at Selma or Muscle Shoals, or up at Elizabeth, Ill., where I happen to live, that is the thing they are interested in. They do not care who uses the power; it is a question of the product that comes from that power, and what is the difference whether this power is used at Muscle Shoals or some other town in Alabama, so far as the people are concerned, outside of those interested in the manufacturing business?

Mr. FRASIER. There is quite a good deal of difference. I will use this illustration: The people in this State can ship cattle into that State [indicating] by reason of having the consuming public near there with like freight rates. They can get 11 and 12 cents a pound for their cattle. We people down there can ship cattle just as good, but we can not get, say, over 4 or 5 cents a pound That is the difference. The market needs to be near at hand, to eliminate the difficulty of getting to the market and the cost of the freight rates.

Mr. MCKENZIE. That brings back my question: You are interested in this matter as a local proposition?

Mr. FRASIER. No, sir. My interest in it applies to every farmer in America that this power can reach, and I want to go on record about that. I am perfectly honest in my statements, gentlemen. I could not come up here and face you, appealing to you from the standpoint only of the people in Selma, Ala.

Mr. JAMES. What is the population of Selma to-day?

Mr. FRASIER. The population of Selma is about 19,000.

Mr. JAMES. What do you mean by telling this committee that if the farmer takes a basket of tomatoes into Selma he would flood the market?

Mr. FRASIER. I thought you probably would make light of that statement. The people right in the immediate neighborhood of Selma supply Selma with the necessary products. That is, just 2 or 3 miles out. There are not enough people in Selma to consume the products from 15 to 20 miles out, from which they could be brought; so that, if any quantity of them should be produced at a greater distance and added to the normal supply there by some other farmer farther back who wants to diversify and bring them into town, it would no doubt put too much of that article on the market.

Mr. JAMES. According to your view, then, if we turn this over to the Alabama Power Co., they could ship their tomatoes by wire, or something like that?

Mr. FRASIER. No, sir. I wish, gentlemen——

Mr. JAMES. Were you around here yesterday?

Mr. FRASIER. No, sir; I have not been around here before.

Mr. JAMES. Then you did not hear the Congressman from Alabama state that Mr. Ford would come under it, whether he sold to public utilities corporations, municipalities, or corporations, he would come under the public utilities act of Alabama. Did you know that?

Mr. FRASIER. I won't answer legal questions; I think you ought to call on a lawyer for those questions.

Mr. JAMES. But you have made the statement, he will not come under it unless he sells to public utilities.

Mr. FRASIER. According to my interpretations of that contract I do not see how he can. However, those are things which have been told me by lawyers and should be answered by lawyers, and I understand Mr. Hill has withdrawn that statement from the record.

Mr. JAMES. Then, why make a statement before this committee that such a thing is so if you do not know about it?

Mr. FRASIER. I do know about it. I have gone into it and studied it, and that has been told me by our lawyers, and I have read it here again and, if necessary to repeat again, I do know something about that contract and I do not see how he would come under the control of the public utilities or the Federal power act.

Mr. JAMES. Well he does come under it.

Mr. HULL. Your main opposition to the Ford offer, as I understand it, is that it does not come under the Federal water power act and that he would not have to distribute that power to other consumers? That is your main contention. Have you examined at all the southern utilities companies' offer?

Mr. FRASIER. I read that offer when it came out; I do not remember it well enough to discuss it at this time.

Mr. HULL. That is all.

Mr. MCKENZIE. Do you mean the offer made two years ago, or the one just made a short time ago?

Mr. FRASIER. You have reference to the power companies' offer?

Mr. HULL. The recent one; I had reference to the recent one.

Mr. FRASIER. Oh, yes; I have read that. I know it as well as I know the alphabet, pretty near; absolutely, I know that. I would like to correct that statement I made just now.

Mr. WURZBACH. I would like to have you make some comparison, as briefly as you can, between the water power companies' proposal and the Ford proposal, with reference to fertilizer. What is the difference?

Mr. FRASIER. Well, with reference to fertilizer, the power company proposes to produce—you want me to tell the whole power company offer on fertilizer?

Mr. WURZBACH. Yes.

Mr. FRASIER. They propose to organize a company of $5,000,000 capital stock, with which they propose to manufacture fertilizer, and they say the first year, I think, they will produce at least 5,000 tons of nitrates and that they will increase that, as the demand requires, up to 50,000 tons, and that they will——

Mr. WURZBACH (interposing). If necessary, I think, use 40,000 additional horsepower.

Mr. FRASIER. Wait a minute; I will go ahead—that they are going to supply 100,000 horsepower at actual cost to them for the manufacture of this fertilizer;

then, if the demand requires it, they will supply another 40,000 at a price to be fixed by the Water Power Commission—by some commission.

Mr. WURZBACH. Now, the Ford proposal: They propose as an outside limit, how much—40,000 tons?

Mr. FRASIER. Forty thousand as an outside limit. They only propose to use one nitrate plant, which is plant No. 2. The power companies propose to keep nitrate plant No. 2 in a state of readiness to turn over to the Federal Government at any time and, in addition, to build another plant that will produce 50,000 tons, giving this Government 90,000 tons of nitrate capacity in case of war.

Mr. WURZBACH. With reference to the guaranty of the two proposals, what have you to say about that? Under the Ford proposal, what guaranty does the Government have that that much fertilizer will be produced? They have a $10,000,000 corporation?

Mr. FRASIER. Well, he goes ahead and says he will guarantee to produce it, except when prevented by "causes beyond his control." And it is only a $10,000,000 corporation behind that guarantee. If he does not produce it, the plant has already been sold to him. Just what recourse could be taken, I do not know. The plant belongs to him; it is his.

Mr. WURZBACH. You take the position, as I understand it, that over and above the amount of power necessary to produce fertilizer, the people in that vicinity, the farmers living in Alabama, Georgia, North and South Carolina, and those farmers, have a prior right to the power over and above the general public?

Mr. FRASIER. All those within reach of the power; not the farmers. No; not necessarily farmers; all the people.

Mr. WURZBACH. I mean all the people.

Mr. FRASIER. All the people within the reach of that power have just as much right to it as the people living within 20 miles of Muscle Shoals.

Mr. WURZBACH. You believe, also, they have a somewhat superior right on account of the fact this water power was placed there—a right a little bit superior to the rights of the people living on the other side of the Mississippi River, for instance?

Mr. FRASIER. No; not if the power would reach beyond the Mississippi River. Why, those people have put in about as much in taxes as we have, and as others have, to build that plant, and they have just as much interest it it as we have. And, if the power will reach them, the only fair way you can look at it is that they have an equal right to it.

Mr. WURZBACH. But the probabilities are it would not reach that far?

Mr. FRASIER. Of course. I understand now it is reaching 600 miles.

Mr. WURZBACH. Something was said this morning about the amount of money that Mr. Ford proposes to pay which will, under an amortization plan, pay for the construction of Dam No. 2 and also Dam No. 3, if that is completed. In the Ford offer, however, no more allowance is made for the $17,000,000 that has already been expended in the construction of Dam No. 2?

Mr. FRASIER. Not a particle.

Mr. WURZBACH. Four per cent interest on $17,000,000 would be nearly $1,000,000, would it not—$680,000?

Mr. FRASIER. Yes, sir.

Mr. WURZBACH. About how much would that amount to, under an amortization plan?

Mr. FRASIER. He would be able, with that, to give the people, the Senators, and Representatives of America, and all the employees of the Government—to lend them—$100, without collateral, without a single exception, from what he would save on that at the end of the 100 years.

Mr. WURZBACH. I simply want to suggest that. I am favorable to the Ford p'an myself at this time, but I thought it might be well to put that up against the $19,800 that Mr. Ford proposed to pay annually—that he is relieved from paying $680,000.

Mr. FRASIER. Why, gentlemen, at the end of 50 years, the importance of that project will be so enormous that $50,000,000 interest on it probably would look like 5 cents to you now, if this country continues to develop as it has developed in the past 150 years.

Mr. WURZBACH. That is all.

Mr. WRIGHT. Where do you get the authority for the statement that the water power companies making this fertilizer proposition will manufacture 5,000 tons of nitrate the first year?

Mr. FRASIER. I thought that I read that in the offer. Let me see now. I think that is what they offer.

Mr. WRIGHT. All right. Now, let us see if that is in it: "As soon as this proposal is accepted by the United States, the company will commence construction on the first unit of the plant to produce annually fertilizers which contain at least 5,000 tons of nitrogen and will complete and place the same in operation as soon as possible after the power for the operation thereof is available at dam No. 2."

Mr. FRASIER. It stands to reason that they can not produce it without first having the means to produce it with.

Mr. WRIGHT. What I read is all of it. Is that what you base your statement on that they will make 5,000 tons of nitrates the first year?

Mr. FRASIER. They will make 5,000 tons of nitrates the first year if they are in operation. It stands to reason they could not make it until they got ready to make it.

Mr. WRIGHT. When will that be? Who is to be the judge when it is possible to complete that unit?

Mr. FRASIER. It says there they will do it as soon as it is practicable and possible.

Mr. WRIGHT. "Possible!" Who is going to determine that under this offer?

Mr. REECE. Would not there be the same authority to determine it as there would under any other offer?

Mr. WRIGHT. I am talking about this one. He says he is an expert on this one; he says he knows it like the A B C's.

Mr. FRASIER. That is a question I will leave to you Congressmen and Representatives, who are supposed to represent us, to settle. We are willing to trust those matters to you honorable gentlemen, because we believe you will make them do it as early as possible.

Mr. WRIGHT. But you said they would have to do it under their offer?

Mr. FRASIER. They have to do it if you make it bind them like you ought to. [Laughter.]

Mr. WRIGHT. Then, you say they will increase their production up to 50,000 tons per annum, as soon as there is a market for it? Who is going to determine when that market arises under this offer?

Mr. FRASIER. You can rest assured that the farmers will determine that, sir.

Mr. WRIGHT. But you understand the contract, whether it is between individuals and corporations, or between the Government and some individuals corporation, means something. The contract measures the liabilities.

Mr. FRASIER. These questions you are asking me, gentlemen, are questions you men should settle. Most of you are lawyers and men of unusual ability, or you would not be here. Those are questions you should settle and work out for yourselves.

Mr. WRIGHT. I want to get some information. You said zou had mastered that, that you knew it like the A B C's. Now, when did you read the Ford offer?

Mr. FRASIER. I have read the Ford offer two or three times.

Mr. WRIGHT. When was the last time you read?

Mr. FRASIER. About 15 minutes ago.

Mr. WRIGHT. Now, what does he propose to do to manufacture fertilizer under his offer?

Mr. FRASIER. Mr. Ford proposes to take over, to use, nitrate plant No. 2 for the purpose of manufacturing fertilizer and I am not just quite sure what his proposal was there for the amount to be manufactured each year. He only proposes in all, or promises in all, 40,000 tons of nitrogenous—fertilizer containing 40,000 tons of nitrogen.

Mr. WRIGHT. That is all you want to say about that?

Mr. FRASIER. Well, he says he will only do that provided that some conditions beyond his control will not arise, and I imagine, even with his great power, there will be some conditions arise beyond his control, although some people are not inclined to think that way.

Mr. WRIGHT. Did you ever know a contract for construction or otherwise that did not contain those usual provisions, in case of strikes, of fires, or causes beyond the party's control, he would be relieved for that time? Is that not common in all those contracts?

Mr. FRASIER. I am not a lawyer, sir; I am not accustomed to drawing up contracts. I am a farmer and accustomed to signing contracts without asking questions.

Mr. WRIGHT. What did you mean by the statement to the committee you did not want to see the Government enter into any contract whereby your children and grandchildren might have to take, in the future, a Ford car with 5 tons of

fertilizer or a Lincoln car with every 50 tons they bought? Where did you get that? [Laughter.]

Mr. FRASIER. Well, gentlemen, it is a well-known fact that when Mr. Ford wants to raise some money, he ships his agent a car with a bill of lading attached and says, "Pay it or I will look up another agent," or something to that effect. That is the general impression I glean from the agents. And, of course, that as a rule is passed on to the farmer, as far as practicable.

Mr. WRIGHT. Do you not know, under the Ford offer, he agrees here to the appointment of a bureau or commission to see to the distribution of this fertilizer, and that language is employed in his offer—"For these purposes said board shall have access to the books and records of the company at any reasonable time"? That is for the determination of the cost. Did you read that?

Mr. FRASIER. I read it; yes, sir.

Mr. WRIGHT. How do you get automobiles or Ford cars or Lincoln cars in that proposition?

Mr. FRASIER. Well, all I know is that he has a contract with these agents that he send these cars to, that he got by very cleverly.

Mr. WRIGHT. But this is a matter of regulation. He agrees to the appointment of a board here of farm organizations. Do you not know he does?

Mr. FRASIER. Yes; I know that.

Mr. MCSWAIN. Appointed by the President, confirmed by the Senate.

Mr. WRIGHT. Surely. Have fertilizers been high or cheap in the last four or five years—commercial fertilizers?

Mr. FRASIER. Well, they have been high.

Mr. WRIGHT. Do you use much fertilizer in your section?

Mr. FRASIER. We use a large quantity of fertilizer; yes, sir. We use a great deal of fertilizer in our section.

Mr. WRIGHT. You are not in what is called the "black belt"? That does not extend down that far?

Mr. FRASIER. Yes; I am in what is called the "black belt."

Mr. WRIGHT. That is a very fetile section, is it not?

Mr. FRASIER. That is only a small fraction of Dallas County, a very small fraction of Dallas County. Dallas County uses a termendous amount of fertilizer.

Mr. WRIGHT. Fertilizer is now a necessity, is it not, for the successful production of crops?

Mr. FRASIER. Yes, sir; in the sandy sections.

Mr. WRIGHT. You were talking about Selma being glutted with tomatoes by some farmer bringing in a basket there. Speaking about a market, do you not know that train loads from Florida, every day, of lettuce, tomatoes, celery, and all that kind of vegetables, come clear up to New York, and go all over the country? Do you think if somebody were to establish an industry down there in your county, whereby they could successfully grow those products, that they could not find a market somewhere in the United States for them?

Mr. FRASIER. Yes; I know it, and I have known a carload of vegetables to be shipped to one of the Northern States and a bill be sent back for $4 to pay the freight on it.

Mr. WRIGHT. Those things are the chief industries in Florida, are they not?

Mr. FRASIER. Yes.

Mr. WRIGHT. They have done very well?

Mr. FRASIER. Yes.

Mr. WRIGHT. You have known cotton to sell for 4 and 5 cents, too, have you not, away below the cost of production.

Mr. FRASIER. Yes.

Mr. WRIGHT. But that does not continue, does it?

Mr. FRASIER. No.

Mr. WRIGHT. Do you think there is an overproduction of cotton now in this country?

Mr. FRASIER. Not now, certainly.

Mr. WRIGHT. Do you think there has ever been?

Mr. FRASIER. Why, surely.

Mr. WRIGHT. Do you think, as long as in the world human beings need garments to wear, made out of cotton, that there will be too large a production of cotton?

Mr. FRASIER. Certainly, if they have not the money with which to buy it.

Mr. WRIGHT. Do you think there is too much grain produced?

Mr. FRASIER. Absolutely.

Mr. WRIGHT. You say you were reared on the farm?
Mr. FRASIER. Yes.
Mr. WRIGHT. To which do you devote the most of your time, to the chamber of commerce or the farming operation?
Mr. FRASIER. For the last six months I have been connected with the chamber of commerce. Up to that time I devoted my time to farming operations; I am still devoting a good part of my time, some part of my time, to farming operations.
Mr. WRIGHT. You were primarily interested in the farmer—what he would get out of this situation?
Mr. FRASIER. Well, that seems to be what the politicians are interested in.
Mr. WRIGHT. You are on the stand now; you made the announcement.
Mr. FRASIER. I am interested in the greatest amount of service to the greatest number of people, reagrdless of class, sex, or previous condition of servitude.
Mr. WRIGHT. Do you know the primary object and basis under which the Government undertook to establish this plant at Muscle Shoals?
Mr. FRASIER. Absolutely.
Mr. WRIGHT. What was it?
Mr. FRASIER. It was for the manufacture of nitrogen principally for war purposes, was the main object.
Mr. WRIGHT. Then for fertilizer in time of peace?
Mr. FRASIER. Yes.
Mr. WRIGHT. Can not you see that the power end of this proposition is but an incident of the real purposes; that is, the manufacture of explosives in time of war and fertilizer in time of peace; that power was simply an incident to drive this great plant, so that these things could be produced?
Mr. FRASIER. Yes, I see that; but it was the great power there which attracted the plant.
Mr. WRIGHT. Is not that the reason they located it at a point where hydroelectric power could be produced, in order that this plant might be operated?
Mr. FRASIER. What is the difference between using it for industries there at Muscle Shoals and industries out where it will serve the most people?
Mr. WRIGHT. All right, sir; that is all.
Mr. GARRETT. Were you familiar with the Ford proposition submitted to the last Congress?
Mr. FRASIER. Yes, sir; I read it and studied it at the time.
Mr. GARRETT. Did your chamber of commerce interpose any objection to it at that time?
Mr. FRASIER. I was not there at that time, and I do not know.
Mr. GARRETT. Did you have any objections to it at that time?
Mr. FRASIER. The Ford proposal?
Mr. GARRETT. Yes, sir.
Mr. FRASIER. No, sir; I am very glad you brought that out. I was like the rest of the farmers in our section, in a rather desperate condition, and I followed the crowd out into the wilderness, and I am coming back to the crowd, and I believe that if you people will spread education on the true facts of this thing, you will find the whole crowd will be there.
Mr. GARRETT. Just when did you see this light that led you back?
Mr. FRASIER. Mr. Chairman, must I answer that question?
Mr. MCKENZIE. It is optional with the witness.
Mr. FRASIER. I have forgotten.
Mr. GARRETT. When the proposition was before the committee two years ago, do you recall any serious opposition that was interposed against it by the Alabama Power Co., which was the only one that was opposing it at that time, except the fact that the Alabama Power Co. owned the Gorgas steam plant that claim they had a right to repurchase from the Government under a war contract? Do you recall the hearings, and was there any determined opposition, except the Gorgas steam power plant?
Mr. FRASIER. I would not like to answer questions or to commit myself on things that happened that far back.
Mr. GARRETT. When did your chamber of commerce get its first communication in opposition to the Ford plan?
Mr. FRASIER. I could not tell you.
Mr. GARRETT. They did get one?
Mr. FRASIER. I do not know.
Mr. GARRETT. Have not they gotten one since you were there?
Mr. FRASIER. No, sir.
Mr. GARRETT. What caused your chamber of commerce to send you up here?
Mr. FRASIER. How is that?

Mr. GARRETT. What induced your chamber of commerce to send you up here?

Mr. FRASIER. Because of the fact that the directors of the chamber of commerce are able to see the fact that the proposal by Mr. Ford is not for the best interest of the agricultural and industrial sections of Alabama.

Mr. GARRETT. How long did you say you have been with the chamber of Commerce?

Mr. FRASIER. Six months.

Mr. GARRETT. When was the first time they discussed this proposition in the last six months?

Mr. FRASIER. This proposition?

Mr. GARRETT. Yes, sir.

Mr. FRASIER. It has been discussed generally from time to time all along.

Mr. GARRETT. When did they decide that they would oppose the Ford offer?

Mr. FRASIER. When did they decide they would oppose the Ford offer?

Mr. GARRETT. Yes, sir.

Mr. FRASIER. I could not tell you definitely when they decided that.

Mr. GARRETT. You spoke a while ago about some figures concerning some advantages you thought Mr. Ford would have by which he would loan the various Members of Congress and employees of the Government, which number many thousands, $100 apiece, and would have some moeny left. Understand, that the Ford offer is to keep plant 2 in a standby condition for 100 years.

Mr. FRASIER. Yes, sir; and I understand the other offer has an additional plan $50,000, in a standby condition, ready to be turned over.

Mr. GARRETT. The offer you referred to is the one of the subsidiary corporation that is to be used in the event they get this contract.

Mr. FRASIER. Yes, sir.

Mr. GARRETT. I am now talking about the main power, the main power, behind all of this the allied power interests who desire to get the power; that is true, is it not, and the other matter is merely incidental, as far as they are concerned?

Mr. FRASIER. Yes, sir.

Mr. GARRETT. It has been testified for your information before the committee that it would require the Government officials, some have testified, that it would require $200,000 a year to keep plant No. 2 in a standby condition, and one of the power company men testified it would take $100,000 a year. We will come down to the $100,000 that Mr. Ford, if he gets the proposition under his offer, will have to expend to maintain that plant in standby condition. If his corporation should be required to expend $100,000 each and every year for 100 years at 4 per cent simple interest, could you even make a guess as to how many thousands of dollars he could let the Congressmen have, if you charged the interest as they all charge in all these things?

Mr. FRASIER. No; I would not.

Mr. GARRETT. The first $100,000 at simple interest would be $400,000, and from there on down you go to the lesser amount.

Mr. FRASIER. You seem to be good in figures; you figure it.

Mr. GARRETT. You are the man that made the expert calculations in your mind, very quickly, as to how many thousands of dollars could be given out to all the Members of Congress and employees of the Government. I was wondering if you could, with the same speedometer, tell how much the Government would get out of Mr. Ford for which he gets nothing under his offer.

Mr. FRASIER. If the Government did not want under the other offer to maintain power plant No. 2 because of the expense, they can do away with it and still have it at their disposal, 10,000 pounds capacity more of nitrogen in case of war than they would have on the other proposition.

Mr. GARRETT. The Government, as you understand, does not want that plant disposed of. We do not want to leave it to a power company to dispose of it. We want to require somebody to keep it in stand-by condition, whether 50 or 100 years, or any number of years. That is the basis principle. You, and those who are interested with you, are desirous, as I understand of the power. You are interested in the power end of it, the distribution of power. Suppose that someone other than Mr. Ford (we will leave him out of the equation for the moment) should take over this property in its entirety, just as the Government desires to do, and suppose there should be a surplus there of several hundred thousand horsepower of electric energy, and that company should sell that to the industries all over that country, would you and your people that you represent have any objection to that?

Mr. FRASIER. Any other power?

Mr. GARRETT. To any of the people, anybody where they wanted to run their transmission lines to.

Mr. FRASIER. Any organization other than those who have already made offers?

Mr. GARRETT. Yes, sir.

Mr. FRASIER. To make an offer to keep the nitrate plants in condition, manufacture the fertilizer and distribute the power?

Mr. GARRETT. Yes, sir.

Mr. FRASIER. Not a particle, gentlemen.

Mr. GARRETT. If Mr. Ford's offer should be so amended, that after maintaining plant 2 and making fertilizer, if there should be a surplus of power, that he shall be permitted to sell that power to the people generally, to other industries, at such a rate as the water power commission of your State should see fit, or a lower rate than it should fix, would that be satisfactory?

Mr. FRASIER. The amount of the surplus is fixed and it is sufficient to meet the requirements, but Mr. Ford's offer does not provide for the distribution of power.

Mr. GARRETT. Do you think that the power companies would agree to such a thing as that would go through Congress, that somebody else should go there and take over the power plant and sell power below the price fixed by the commission, cheaper power to the various industries?

Mr. FRASIER. The power companies are not the ones to agree. Congress is the one to pass on that.

Mr. GARRETT. If Congress in its wisdom should see fit to look upon the Ford offer as it stands as the best offer, taking the national defense and fertilizer into consideration, I take it from that statement that would be satisfactory to you if they should decide that was best for all the people.

Mr. FRASIER. Well, I do not believe that they could possibly decide that that is the best thing. I do not see how they could, if they will go into the proposition with a view of serving the greatest number of people, and giving benefits to the greatest number of people, and at the the same time keeping the plants and that power under the control, the supervision, of the public utilities.

Mr. GARRETT. That is all.

Mr. MCSWAIN. I believe you stated formerly you favored the acceptance of the Ford proposition.

Mr. FRASIER. Yes, I said I was like the others for the moment; we were for anything that seemed to offer advantages.

Mr. MCSWAIN. Now you say you can not see how anybody can possibly favor the Ford offer.

Mr. FRASIER. Not after having this long to reflect on it.

Mr. MCSWAIN. I believe you say that as long as you were on the farm you were in favor of accepting the Ford offer?

Mr. FRASIER. No, sir.

Mr. MCSWAIN. How long before you left the farm was it that you changed?

Mr. FRASIER. Farmers have so much else to do that they do not have time. I am like the other farmers. I worked myself. I do not have time to remember any changes.

Mr. MCSWAIN. Now, Mr. Frasier, you have manifested a spirit of facetiousness.

Mr. FRASIER. I do not think so.

Mr. MCSWAIN. That is the spirit you have shown, all through your testimony, a spirit of facetiousness.

Mr. FRASIER. No, sir; I have no intention to be, except I can not see the value of discussing a proposition of this seriousness, of such great importance, and doing it in the light attitude that it is being done.

Mr. MCSWAIN. You did not mean to insinuate that Members of Congress might be influenced by an offer of $100 from Ford?

Mr. FRASIER. No, sir.

Mr. MCSWAIN. That was mentioned by you, was it not?

Mr. FRASIER. Yes. I am sorry that I did mention that.

Mr. MCSWAIN. Do you represent yourself or your chamber of commerce?

Mr. FRASIER. I represent the chamber of commerce, sir.

Mr. MCSWAIN. Now, did the members of the chamber of commerce, as a chamber of commerce, take any action on this?

Mr. FRASIER. Yes, sir.

Mr. MCSWAIN. When did the members of the chamber of commerce take action? That is, when did the hoi-polloi of the members meet and take action?

Mr. FRASIER. They met right recently.

Mr. MCSWAIN. What was the date of that?

Mr. FRASIER. The latter part of last week.

Mr. McSwain. The latter part of last week?
Mr. Frasier. Yes, sir.
Mr. McSwain. Not merely the directors, but all the members?
Mr. Frasier. The directors met.
Mr. McSwain. I asked you if the individual members of the chamber of commerce met.
Mr. Frasier. The directors met.
Mr. McSwain. The directors met?
Mr. Frasier. Yes, sir.
Mr. McSwain. Not the individuals?
Mr. Frasier. Not the individuals; no, sir.
Mr. McSwain. How many directors were present?
Mr. Frasier. There were 14 directors in town at that time; 14 met and 14 directed me to come here and represent them.
Mr. McSwain. Did they have any communications there that were read to them from the Alabama Power Co.?
Mr. Frasier. If they did I did not see it.
Mr. McSwain. Did you hear it?
Mr. Frasier. No, sir; I did not hear it.
Mr. McSwain. Was there anybody there that represented the power company, in person, to tell them about it?
Mr. Frasier. No, sir.
Mr. McSwain. Was not there a lawyer on that board who represents the Alabama Power Co.?
Mr. Frasier. No, sir; there is a lawyer on the board, but he does not represent the power company.
Mr. McSwain. All these 14 men have all of a sudden seen the light?
Mr. Frasier. I suppose they have seen it all along, and at this time saw fit to take action.
Mr. McSwain. That is all.
Mr. Hill of Alabama. Is Mr. Melvin a member of your board?
Mr. Frasier. Yes, sir.
Mr. Hill of Alabama. He was present?
Mr. Frasier. Yes, sir.
Mr. Hill of Alabama. He is a member of the board of directors of the Alabama Power Co.?
Mr. Frasier. Yes, sir.
Mr. Hill of Alabama. Then the Alabama Power Co. was represented?
Mr. Frasier. It was not discussed; the proposition was not discussed from the standpoint of the value to the Alabama Power Co., and it was specifically stated by the board of directors that the thing the board of directors would favor would be the proposition that would mean most to the agricultural and industrial development of Alabama and adjacent States ahead of any individual corporation or concern making the proposition.
Mr. Hill of Alabama. But, as I understand, Mr. Melvin, who is a member of the board of directors of the Alabama Power Co., who is a member of the board of directors of the chamber of commerce of the city of Selma, Ala., and was present at this meeting of the board of directors of the chamber of commerce of the city of Selma, where they took this action, you have just told us?
Mr. Frasier. Yes, sir; but you understand that Mr. Melvin is one of 14.
Mr. Hill of Alabama. That is right. I have been interested in your testimony. As I understand it, all your chamber wants and you want is the thing that is for the best interest of all of the people.
Mr. Frasier. Absolutely.
Mr. Hill of Alabama. Is that right?
Mr. Frasier. Yes, sir.
Mr. Hill of Alabama. And you are not in any way whatever wedded to the Alabama Power Co.'s offer or the Ford offer or any other offer?
Mr. Frasier. No, sir; as a matter of fact, I think, gentlemen, in all justice to the man who first brought up this proposition, that if he should submit such a proposition as completely with the things I have set forth here, in all justice to him, you would have to give it to him. I am not antagonistic to Mr. Ford.
Mr. Hill of Alabama. You are not partial to the Alabama Power Co. as I understand?
Mr. Frasier. No, sir.
Mr. Hill of Alabama. You do not care who gets it so it is to the interest of all the people?

Mr. FRASIER. So long as it serves the best interest for the greater number of people I can not say that I am in favor of any individual or corporation. One of them has as much right to it as the other.

Mr. HILL of Alabama. Do you know when Mr. Melvin was made a member of the board of directors of the Alabama Power Co.?

Mr. FRASIER. No; I do not.

Mr. HILL of Alabama. It has been a recent date, has it not?

Mr. FRASIER. Probably five or six months, I think.

Mr. HILL of Alabama. Mr. Melvin was made a member of the board of directors of the Alabama Power Co. five or six months ago?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. You recognize this fact, so far as that State is concerned, the Alabama Power Co. has gone down there and endeavored to get influential men like Mr. Melvin with them, has it not? Has not that been the policy?

Mr. FRASIER. I do not know if that is their policy. Possibly it is not unlike Ford's in that respect.

Mr. HILL of Alabama. They have done that thing, have they not?

Mr. FRASIER. They have got Mr. Melvin. I do not know the policy.

Mr. HILL of Alabama. They have other men similar in influence to Mr. Melvin in other localities, have they not?

Mr. FRASIER. I do not know.

Mr. HILL of Alabama. You do not know?

Mr. FRASIER. No, sir.

Mr. HILL of Alabama. They have gone into your good town of Selma and my good town of Montgomery and have endeavored to sell stock at $100 a share, $5 down and $5 a month on the installment plan, have they not?

Mr. FRASIER. I have not investigated that. I think they have been selling stock.

Mr. HILL of Alabama. On the installment plan, have they not?

Mr. FRASIER. I think they have, but I have not bought any.

Mr. HILL of Alabama. They have used the papers in Alabama very extensively in matters of advertisement, probably running into thousands of dollars. You see your own papers. Do you not see advertisements all the time of the Alabama Power Co.?

Mr. FRAISER. In which way?

Mr. HILL of Alabama. Advertising the Alabama Power Co.?

Mr. FRASIER. I see papers advertising the bonds of the Alabama Power Co.

Mr. HILL of Alabama. Those are advertisements by the Alabama Power Co.?

Mr. FRASIER. Yes, sir; advertising bonds.

Mr. HILL of Alabama. Advertising bonds?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. I have been interested in what you have had to say about not having any particular interest in any particular offer. I have been interested in this paper you have. On the back is the name of the Washington Hotel. I take it that you are at the Washington Hotel?

Mr. FRASIER. That is the Washington Hotel.

Mr. HILL of Alabama. Did you get this paper at the Washington Hotel?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. You got it there this morning?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. Who gave you that paper, if I may ask, as a matter of interest to me?

Mr. FRASIER. I got that paper out of the room of Mr. Tom Martin.

Mr. HILL of Alabama. Tom Martin?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. In other words, I judge the first thing you did this morning when you got to Washington was to go to the room of Tom Martin, president of the Alabama Power Co., at the Washington Hotel?

Mr. FRASIER. Yes; that was the first thing.

Mr. HILL of Alabama. That was the first thing of any importance?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. He then provided you with this paper, and you went and sat down and worked out, you and he, these notes to be the substance of your testimony before this committee?

Mr. FRASIER. I went over some of those things with Mr. Martin, yes.

Mr. HILL of Alabama. You went over them with him as soon as you got there, and he is a representative of the power company?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. And you also talked to Mr. Thompson, who is the lawyer for the company?

Mr. FRASIER. Yes.

Mr. HILL of Alabama. You held a conference at the Washington Hotel, and wrote out the substance of what you should testify to before this committee?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. That is a fact?

Mr. FRASIER. Yes, sir. Will you read that last question?

(The reporter read as follows:)

"Mr. HILL of Alabama. You held a conference at the Washington Hotel, and wrote out the substance of what you should testify to before this committee?

"Mr. FRASIER. Yes, sir.

"Mr. HILL of Alabama. That is a fact?

"Mr. FRASIER. Yes, sir."

Mr. FRASIER. I beg to amend that. These things were things I had worked out myself, practically everything on there I worked out myself on the train coming up, and they were gone over with Mr. Tom Martin.

Mr. HILL of Alabama. You discussed those things you worked out with Mr. Martin, a lot of those things on that paper, which you used as the basis of your testimony. You made them out at the room at the hotel?

Mr. FRASIER. Yes, sir.

Mr. HILL of Alabama. In the room of Tom Martin, in the Washington Hotel?

Mr. FRASIER. Yes, sir.

STATEMENT OF MR. W. B. FOLMAR, TROY, ALA.

Mr. FOLMAR. I have sat here and listened with a great deal of interest to the questions and answers that have been asked and answered here to-day. I want to say, in the first place, that I am a dirt farmer, and I am also a banker. I have been in the business for 40 years, and I have no partners except some boys of mine that I am prouder of than I am of Muscle Shoals, Mr. Ford, or anybody else. I have no partners.

I was reared on a farm; I am in the banking business, and largely in the farming business. I worked on the farm until I was 19 years old. I know what it is. I know some of the conditions that exist.

I want to say that I heartily concur in the red-headed man, that is, I concur in most of the statements made by the red-headed man. He undertook to give you the conditions down there. He is a neighbor at Selma. I live in the best town in America; I live in Troy, and I want to tell you this, that this is a gigantic proposition that you people are handling for Uncle Sam, and I believe you are equal to the emergency, but the reason I want to say a few things here this evening is because I understand the farmers and the farming conditions in the Southeast, that is, southeast Alabama, and all over Alabama, almost, and Georgia, that part of Georgia next to us, and Tennessee.

I never had any chance to get an education, and if I had I would have done like the red-headed man, write it off, so I could get it off, so I could get it out here intelligently to you people.

As I said just now, it is a gigantic proposition, and this proposition arises in Alabama. The proposition arises in Alabama; that is, the power arises in Alabama, that we are talking about here. God Almighty fixed it down there, as well as he did the falls of Niagara, and we feel that we want you people to look after this matter. As I said, I am not interested in any of the power companies directly, indirectly, or anything of the kind, but I do want to ask of you people to handle the subject, as you are the representatives of the very great Uncle I have, not as a local matter, but handle it for old Uncle Sam, and we are all interested, and I sat and listened with interest when the red-headed man was being questioned as to why we would want power spread over that country like the dew.

Because we want that power down there is not that we do not want them to have it up here in Illinois or in Washington, or elsewhere. We feel the need of it, the farmers, and I might say again that I am not talking—I wanted to substitute what the red-headed man said about his grandchildren; I have got 10—5 girls and 5 boys. I do not expect to live anything like the termination of 50 years, but I, too, come in contact with all the farmers of that country, practically. I come in contact with them daily. I, too, when Mr. Ford come out with his first bid in 1922, I believe, read carefully up about it, did not get up with it; I did

not learn it like A, B, C; I can not read very well, but the point I will make, and I am going to scatter around from point to point, and if I hit anything that is of intelligence, I want you to take notice.

This is of great importance to the greatest country where the sun shines, and you people are all agents attending to it for Uncle Sam. I am interested. That is the proposition. God Almighty made the little river that runs down in there, so constructed it that He gives us the most wonderful power. It is true that you can not use the water after it runs through the mill one time, but it keeps on dropping down, down, down, until it accumulates the power. I do not know how much, in fact, do not know anything about electricity or hydroelectric power. I would not know a kilowatt if I was to meet it in the road. I do not know anything about that, but that river drops off here, and God Almighty runs the hillside up to it and the mountains, where you can dam it up to a point below, and use the same water, and follow it on down, and you will get the power down there that God Almighty intended. He put the coal mines and things of that kind under the earth and as need comes for it He develops it.

As the young man said just now, the red-headed man, and I want to say about the red-headed man—you have heard the story of the fellow drowning the red-headed man. This whole thing here, as I see it, relative to the bids you have before you now, is worthy of your consideration. I do not care who gets it. I would like to ask you people not to tie it up for time immemorial or leave it tied up, which I do not believe you will do, where we would lose by the time.

The Alabama Power Co. is down there. They have associated themselves, as I understand, with some power company at Memphis and over in Tennessee and in some other place. I have not the time and have not had in years. I have had to work and go along and look after things to run power companies, electric light plants, and so on, but I do know we need the expansion of that power throughout our country down there, that the man who grows or plants his little farm, he sits way back down there and cultivates a little farm out there, and can not sell his product. He is not in the position to put it in the market without the power, and therefore it rots on his hands, and it is not worth anything. The illustration of that comes to my mind when I was over in New York not long since, and I looked out over the vast amount of people there and I wondered where they got something to eat. Then I preambulated back in my mind as to where they did get it. It comes off the farms and around through the country, shipping chickens and things of that kind, but we are at a disadvantage down yonder. It is not a local affair I am talking about, but I want you to represent the man in your State, Mr. Chairman, as well as you do the State of Alabama, Georgia, Tennessee, or any of those States down around us.

But to go back to the little farmer who lives out there, and who grows the cantaloupe, and then comes in my mind sitting at the table in one of the big hotels in New York, almost as much a day as I would get for a small farm, and this little farmer grows that little cantaloupe. He can not get over a nickel for it, and many times they have to lay scattered over the patches and rot.

I walked in the hotel, sat down with my granddaughter and my wife, and I said to my wife, "What will you have?" She said so-and-so, and I said to my granddaughter, and she looked closely over the menu, and I said, "Give me a couple of cantaloupes," one for my wife and one for myself. I said to my granddaughter, "What do you want; won't you have a cantaloupe?" She said, "No." She caught the cue. When I got through, on my bill there was a charge of 60 cents for half a cantaloupe, that the farmer did not get 5 cents for. They are rotting in his patches down there.

The same thing is true with other things—tomatoes and things of that kind. Now that little farmer back over there, where he has got no power, can not help himself, is trying to make a living and go along and live, and conditions have arisen in Alabama, Georgia, and all through that section that they are leaving the farms, and I do not blame them. God knows they can not make a living, and therefore we ask you as agents, as our people, representing Uncle Sam, and representing us down there, we ask you to give us a proposition that will give us power. We will can up this stuff if we can get a little electric current; we will can it up and put it up yonder before these people and get some price for it. That is what we will do. We will can it. The man will get his little canning machinery and put it up, and he can go to market. If he makes a shipment now, they ask him to send a check for the freight. Therefore, let us have the power to put our stuff in shape for the market. We want to utilize that power and we can not do it unless we can get, and relative to some of the bids that you have had here, it strikes me like the story of the fellow, who said, "Since the prohibition."

This fellow was going along the street and he saw a beautiful sign, and he read on the sign, "What? Do you think John, the barber, will shave you for nothing and give you a drink?" That sounds good. He goes in and sits down, gets a shave, and after he got the shave he said, "All right; that is a nice shave; now you can give me my drink." The barber said, "I will not give you a drink." The fellow said, "You are advertising a shave here and you give him a drink." "No, not at all." He said, "Come out and I will show you the sign," and they went out and looked it up, and the sign read, "What? Do you think I will shave you for nothing and give you a drink?" The fellow thought it read "What do you think? I will shave you for nothing and give you a drink."

Gentlemen, let us profit from the fellow that went into the barber shop. Some questions were asked the red-headed man here, "Why did you do so and so?" We are sitting in the barber shop to-day waiting for possibly some of the bids you have got, and we have got the right; we have got the right.

I grant you Mr. Ford is a wonder. He is a wonder—a wonder. He is a money maker, and I will tell you he knows how to do it. I do not have to tell you. You know he knows how to do it. He is surrounded with the best talent of America and elsewhere. Mr. Ford proposes, as I can go through with it and read it—I can not see the punctuation marks. Do you get the point? I know you do. I do not see the punctuation marks. I did not know what it meant, that little "I will shave you and give you a drink." Now, I ask you to look out for Uncle, Uncle Sam, which I believe you will do, but I will ask you in the name of the people, the people in southeast Alabama, Southern States, in that part of the country down there, to let us have something of that power; let us have it as soon as we can, but for heaven's sake do not go and put it in a way, which I do not think you will do, over a period of 100 years. Don't give it to anybody until you have looked at the punctuation thoroughly.

I would like to say a great deal more, but I do not know how to say it; but I want to say this, that we want the power down there, and we want them to have it up here. We want to give it to others if possible. We have got the power down there. Give us somebody that will develop it and do it as soon as possible, and if Mr. Ford falls to it first, if you please, so that the man who makes the most money of any man living will not have it where he can get out from under it. That is all I ask. The power company is down there, and if they can distribute that power out as well, I have got no objection to Mr. Ford having it. I have not any special reason why the power company should have it, except I feel that, under the conditions, if you can tie the power company up in a contract where they will not promise you a thing, that they can do as well for us as Mr. Ford, and why the question asked by Mr. Representative of the red-headed man if Mr. Melvin was this, that, and the other. We all want to make money. We want to get that power down there where the little farmers can not help but make it and the little towns can have their light. I live in a town down there now of which I was mayor for 11 years. It is a good town. Our lighting system is not right. It is individually owned, and so on, and we can not get what we want. We want the power scattered over the State and over these others this way, if possible, like the dew.

Mr. Ford made lots of money, I admit, but I want to say in our section, and I do not know how it is in others, but Mr. Ford has got a contract that he lets out to Ford dealers that is a dandy, and to my certain knowledge it happened several times there, in connection with the contract that Mr. Ford lets out, he puts in there about a Lincoln car, and he has the contract so punctuated that if he so desires he could ship out carload after carload, bill of lading attached, and if they do not take them out they forfeit their right to the Ford agency, which is fine, and you must keep a Lincoln car, no matter how remote, if he sees fit, you must keep a Lincoln car on your salesroom floor, and I think those cars cost $4,000 or $5,000. I knew a firm that less than a month or two months ago went out of business because they did not have enough money to buy it. Do not let him put Uncle Sam out of business—put Uncle Sam out of business in any such way.

As to fertilizer, I am very much in favor of getting that fertilizer, and if this country, while I do not know anything about it, if the progress all over this country in the next 50 years continues as it has in the last few years, why we will laugh at the methods which we have now, and they are getting along. It is only a few years ago if we had told you that you could sit in this office and talk to the fellow down there and hear his voice they would have laughed at you and said you were crazy. It may be possible there may be a drawing in 50 years rolling out of the air, of this nitrate—it will be rolling out of the air like so much water.

Gentlemen, I ask you, in giving out this contract, and I know you will do your best, I do not think any of you—the gentleman here fought about selling out for $100.

Mr. McSwain. Would you put any price at all on it?

Mr. Folmar. I would not, because I am not in that business.

Mr. Reece. No man suggested any member would sell out, and it is unfair, and it is unfair to make any insinuation of that kind.

Mr. Folmar. You are the agent for Uncle Sam, representing him.

Mr. McSwain. I am his servant; I am his son.

Mr. Folmar. That is the same thing we call it down there, an agent. You are acting for him.

I have not another word to say.

Mr. McKenzie. I think perhaps that had better go out of the record.

Mr. Reece. The one in connection with the previous testimony also?

Mr. McKenzie. That was the discussion had between the two gentlemen themselves.

Mr. McSwain. I do not care anything about it going out. It is all right with me to let it stay in or go out.

Mr. McKenzie. If there is no objection it will go out.

Mr. McSwain. I will not let anybody make an insinuation that $100 is too cheap.

Mr. McKenzie. Sometimes they are made very lightly.

Mr. Folmar. If I made it, I did not intend it.

Mr. McSwain. I accept your apology.

Mr. McKenzie. I want to congratulate you on your success in life, and on the very frank statement you made before this committee, and I want to further say to you that you have a misapprehension of the people of this committee. If you think that we have been sitting here for two years trying to put over a proposition for the benefit of Henry Ford, I want to say to you that I come from the great State of Illinois, a long ways from Muscle Shoals, but the people out there knowing that the Tennessee River has its sources, some of them in North Carolina, and then through the mountains, and then with a long sweep south to the State of Tennessee, flowing into the north end of the State of Alabama, by chance, and then out of the State of Alabama across the States of Tennessee and Kentucky into the Ohio River—we out in our section of the country look upon the Tennessee River as a national stream, and we do not envy the people in the South. We are interested in you.

I have sat here day after day, week after week, and month after month, along with my colleagues, to try to solve this question, which is of great interest to you people in the South, of greater interest to you than to any other people in this great country of ours, but I do know, I think I know and realize that a great development in the State of Alabama will be indirectly reflected to the poor farmers on the rocky, barren, worn-out fields, perhaps, of New England, and also, perhaps, in the great West of our country, from which I come, and you can go back to your home with the understanding that this committee has not been sitting here as representatives of Mr. Ford, or undertaking to put over anything for Mr. Ford or the Alabama Power Co. We are trying earnestly to solve this problem to the best interest of all the people of the United States, and we will be glad to get any light on the subject that can be brought to us by anyone, and we have listened patiently, for many, many weeks, and we are glad to hear from you. You made a frank statement, and you are for your section of the country, you understand, first, and then if there is anything left all well and good, let the good people of the country get the benefit.

Mr. Folmar. If I have said, Mr. Chairman, anything that would be like a reflection on the committee, I want to apologize, and to the contrary I want to say that I believe you will do the best you can with it.

Mr. McKenzie. That is our purpose.

Mr. Folmar. That is the way I feel about it, but I do put stress on the fact that we want it down there, and if possible as soon as you can make it. We would like to have it soon. The fertilizer deal would be a good thing for us.

Mr. McKenzie. You understand I am not criticising you.

Mr. Folmar. And I want to say that you live in a great State. I go there once or twice a year and enjoy that cold country. I have got some friends as I have in the world at Springfield, Ill., whom I have known for 25 years. I have been there once or twice, and I did not come here to talk about whether you gentlemen would do anything out of line or not. I do not believe you will and my own purpose was to get you to let us have that power down there.

Mr. HULL. Your idea is, as I view it, and I think your statement is very fair and very comprehensive, in which I saw nothing objectionable, in any way—your idea was that we should in letting this contract, let the contract only for 50 years. You object to the 100-year contract.

Mr. FOLMAR. Well, it ran across my mind that 50 years is a good long time.

Mr. HULL. And you want it let in such a way that when the power necessary to maufacture this fertilizer is used, that the power beyond that shall be distributed through the different sections of the country, as far as possible.

Mr. FOLMAR. That is correct.

Mr. HULL. What was your idea?

Mr. FOLMAR. That is purely what I want to say.

Mr. HULL. I thank you. That is all.

Mr. JAMES. When did you arrive in Washington?

Mr. FOLMAR. When did I arrive?

Mr. JAMES. Yes.

Mr. FOLMAR. Last night.

Mr. JAMES. You did not come up with Mr. Frasier?

Mr. FOLMAR. We were in the same train. I came along with him.

Mr. JAMES. Are you staying at the Washington Hotel?

Mr. FOLMAR. Yes, sir; I am staying at the Washington Hotel.

Mr. JAMES. Is that a good hotel?

Mr. FOLMAR. Yes; it is a good hotel. I stop down there.

Mr. REECE. I stayed down there during one session of Congress and found it to be a desirable place.

Mr. FOLMAR. I have stopped there every time I have been in Washington.

Mr. JAMES. Have you seen Mr. Martin since you have been here?

Mr. FOLMAR. Yes, sir; I know him very well.

Mr. WURZBACH. Mr. Folmar, the Ford proposal is for 100 years. Mr. Ford, of course, will not live during that entire period, will he?

Mr. FOLMAR. How is that?

Mr. WURZBACH. I say the Ford contract goes over a period of 100 years, if his contract is accepted; then, of course, we know that he will not live more than 20, 25, or 30 years. That would be about his life expectancy. That contract would be carried out during the balance of 100 years by a corporation, a $10,000,000 corporation. Do you not think that there is a danger that that corporation, with cheap power, would be in a position to drive out all other competition?

Mr. FOLMAR. Possibly so, yes; possibly so.

Mr. WURZBACH. You have millions of dollars invested in cotton mills in that section of the country, in Georgia, Alabama, North and South Carolina?

Mr. FOLMAR. We want many more. We have not any through our section, practically none, and we want more.

Mr. WURZBACH. This Ford corporation would be under no control of the Government in the matter of the use of the water power over and above that used in fertilizer production.

Mr. FOLMAR. How is that?

Mr. WURZBACH. The Ford Corporation, say, after the death of Mr. Ford, would be under no governmental control in the matter of charges they would make for the product of its factories at Muscle Shoals. Do you not think there might be some danger there? I am looking at it from the standpoint of your section. Do you not think there might be some danger to the existing industries in that section, that they could be put out of business by this corporation, having cheap water power of almost unlimited extent, and put existing industries out of business and monopolize the entire manufacturing industry of your section?

Mr. FOLMAR. I do not know that I have thought about it in that light, but even if I was to say "Yes" it might be a possibility of that to anybody else you let it to.

Mr. WURZBACH. Under the other proposal, the excessive power over and above that used for fertilizer would be under governmental control. That power would be sold and be under the water power commissions of the different States. That would not be possible with the power that is developed under the other proposal that is now before the committee; that is, the combined water power companies.

Mr. FOLMAR. Would be under the control.

Mr. WURZBACH. That would be under the control of the Federal Water Power Commission, or the State commission. There would not be any danger there of a misuse of that power, but I was just wondering, looking at it in the

interest of your section—I am a southerner myself—whether there might not be some danger to the great interests of that section by a great monopoly being created, uninfluenced by the altruism of Henry Ford after he passes away, say, for 80 years after Mr. Ford's death this corporation were under the control of selfish capitalists. Would it not be possible for that power company to be misusing this power to the detriment of existing industry in this section of the country?

Mr. FOLMAR. If their power company got it under their bid, you ask me could it not be used possibly to the detriment of that part of the country?

Mr. WURZBACH. If an offer similar to the Henry Ford offer were accepted, and contract entered into, Henry Ford——

Mr. FOLMAR. The point I am trying to make, and I may not make myself understood is this: Do not let it get out of where the Government can have a say in it. That is what I am trying to say. Let it be, "All right, Mr. James Smith, John Brown; you must do so and so."

Mr. WURZBACH. Now, take this situation: Supposing that this corporation were to decide to erect great cotton mills right at Muscle Shoals with this cheap power available, what possibility would there be for the other cotton mills in that section of the country to compete with the corporation that had the power at about half of what it cost the other companies to operate? Do you not think there ought to be some control—some governmental control?

Mr. FOLMER. That is, a commission? I never did make any study along that line, but my whole trend, in what I have tried to say here, is that we want to keep it—I want you people to look well, as I said, and I believe you will—in the reach of the Government's control.

Mr. WURZBACH. That is exactly what I am in favor of.

Mr. FOLMER. I would like to see you keep it where, if anybody was being hurt by it, you could just say "Hold on; our commission will stop you from doing that," a Government commission, or the State commission.

Mr. WURZBACH. I want to say that I do not believe that Mr. Ford would favor that kind of a policy, because I have a great deal of confidence in his public spirit and all that; but looking to the future and after the death of Mr. Ford, which will probably be 75 years before the termination of this contract and when this great power passes into strange hands, I am just wondering whether there might not be an abuse of that power and whether or not it might not operate to the great detriment of the very section of the country that ought to benefit by this great water power that was placed there, as you expressed it, by God Almighty, that it might be used to destroy the very benefits that nature gave you. I think that is a matter worth considering.

Mr. FOLMAR. I, in my feeble way, possibly, have considered along those lines and my whole hope is you won't let it to anybody that will ever get it out of the control of the Government and the States in which the powers were placed.

Mr. QUIN. Mr. Folmar, you have succeeded pretty well down there in Alabama, have you not? I judge you have.

Mr. FOLMAR. Well, I think so. I have raised some of the finest boys in the world.

Mr. QUIN. This building on the card here is a seven or eight story building that belongs to you and your boys?

Mr. FOLMAR. That belongs to me individually and every boy I have (and I have some over 40 years old) is interested.

Mr. QUIN. This is a seven or eight story stone or brick building?

Mr. FOLMAR. No; not that big. I wish it were.

Mr. QUIN. How high is it?

Mr. FOLMAR. It is three stories and basement.

Mr. QUIN. It is three stories and basement?

Mr. FOLMAR. Yes, sir; and not much of a basement; just a little dugout thing. [Laughter.]

Mr. QUIN. Now, you were speaking of power. Alabama has more natural resources, coal and iron, than any other State in the South, has it not?

Mr. FOLMAR. I am glad you mentioned that, and I think I will heartily agree with you

Mr. QUIN. And it has more water power, except leaving out Muscle Shoals on the Tennessee River, than any other State in the South?

Mr. FOLMAR. Where?

Mr. QUIN. In Alabama.

Mr. FOLMER. I have never located it. Where is that power?

Mr. QUIN. I am giving you a little information, then. They have very fine water powers down there, leaving out the Tennessee.

Mr. FOLMER. We are working on a plan to have power to float our boats down from Mobile.

Mr. QUIN. You have in Alabama, according to the evidence before this committee two years ago, quite a lot of water power, and the evidence is that every speck of it has been grabbed up by the Alabama Power Co. Do you know that?

Mr. FOLMER. I do not know that, and I wish you would tell me about that. [Laughter.]

Mr. QUIN. I have not the time. I make this statement, and it is in the record here. Now, Mr. Folmer, aside from that natural resource that you have let get away to a foreign corporation, dominated by Great Britain, you have coal and iron there back in that State in great abundance?

Mr. FOLMER. Yes; lots of it. Fine.

Mr. QUIN. You have the biggest furnaces in the world, and you have bordering your State the Gulf of Mexico, where the commerce of the world can go on the boats on the sea. Is that not true?

Mr. FOLMER. Yes; we have a little water down there.

Mr. QUIN. Now, do you not know this proposal of Mr. Ford, if you have read the hearings on it, proposes not only to build Dam No. 3, but ultimately to build two other dams and to make that Tennessee River navigable on up into Ohio, and then, of course, after it gets into Ohio it is navigable to the Mississippi, and up the Mississippi to the Great Lakes and the tributaries of the Northwest, and down the Mississippi to the Gulf of Mexico or China, Japan, London, Liverpool, and all the ports of the world. Now, that is a navigation project. Do you oppose that?

Mr. FOLMAR. No; but——

Mr. QUIN. Just answer my questions now; yes or no.

Mr. FOLMAR. Do any boats go right out to China?

Mr. QUIN. Yes, sir; out of your State—and that the commerce of your State and all the adjoining States will have this river route to get to the markets of the world.

Mr. FOLMAR. Well, I would say for Alabama and Mississippi and some of our kinfolks down there, who live just across the line in these States, that we are tickled beyond measure that we have right down there at Mobile, or will have soon, an outlet to China or anywhere else.

Mr. QUIN. You do not object to those people over there on that portion of the river, the Tennessee River, in Tennessee, Georgia, and Kentucky having it, too?

Mr. FOLMAR. No; I do not object, if it is punctuated right. [Laughter.]

Mr. QUIN. Do you object further to the fact that this place shall be kept by the Federal Government, through this agency in a stand-by condition, to protect this Government in time of war, to have explosives to carry on the necessary war activities?

Mr. FOLMAR. Well, I do not think that I would object.

Mr. QUIN. You do not object to that?

Mr. FOLMAR. No.

Mr. QUIN. Now the next object for which that was created, to say nothing about distributing power—and we are the agents who brought that question up?

Mr. FOLMAR. Yes.

Mr. QUIN. We are the agents of the Government, and this act created by Congress and enacted into law, and spending all this money down there to harness this stream by building those dams and building those plants, was for the special purpose of making explosives in time of war and then, through all the years of peace, fertilizer for the farmer. Do you know that? I am telling you what this act specifically sets out and I am one of those who helped to pass it.

Mr. FOLMAR. Now it says——

Mr. QUIN. Wait a minute; that is the language. Did you know that was in the act before you came here to testify?

Mr. FOLMAR. No; I do not think I did.

Mr. QUIN. Then you have learned that much. Those are two things. And that navigation project, I want to tell you about. You understand, if this proposition is carried through here and Mr. Ford gets this contract, your State will have a plant making fertilizer there according to the terms of the contract; it binds him, for the 100 years, to keep that nitrate plant up in a stand-by condition. All you would have to do is to blow the whistle and the Government would

go and take charge and put folks in there to make nitrates to fight with, and, in time of peace, he estimates not less than 40,000 tons of this concentrated stuff; that is, the fixed nitrogen, that will make 8,000,000 tons of fertilizer. He binds himself to pay 4 per cent on an amount of $100,000 a year, which is estimated to keep up that plant in this condition, and you multiply that with the interest, either simple or compound, for the space of 100 years, and you will see the great burden that Ford is taking upon himself or the corporation in order to get that power.

Now, then, Mr. Folmar, the excess and above that, under that contract, under the very act this is to be created, was never intended to be sent out by current lines or wires conveying that electricity to anybody else. The contract or lease to Mr. Ford, if he gets this place, carries out the two primary fundamental purposes for which this law was created, for which that money has been spent down there by the Federal Government, because this is a Federal activity, and he then can do what he pleases with the excess of that power, and this committee would be carrying out the very purposes for which the dam was built. Were you aware of that? Whether or not that meets your view, or the view of any citizen down there, that is the law upon which we are acting.

Mr. FOLMAR. That is fine. You will get so much that after awhile I will lose the other end of it. [Laughter.]

Mr. QUIN. Now, then, wait a minute.

Mr. FOLMAR. Now, let me explain up to where you have gone. I am no lawyer, nor the son of a lawyer, and have never been to Congress and never expect to be in Congress. Does Mr. Ford's proposition set up all you have said there?

Mr. QUIN. Yes, sir.

Mr. FOLMAR. Well, then, how is it punctuated?

Mr. QUIN. It is punctuated according to the rules of syntax.

Mr. FOLMAR. Is it where these United States of ours can say, "Mr. Ford, you are using that power over yonder, when our State commission, or our national commission thinks it ought to be over here; you are running it as your personal business over there, and we think that this part of the country should have the benefit of that, and we have found a way by which we can utilize this power over there; Mr. Ford, put it yonder, and take it out of your personal gains on the outside, and make that stuff for us"? Have you got it that way for the Government?

Mr. QUIN. We can not take all of the pie and then eat it, and keep it at the same time.

Mr. FOLMAR. I understand. But we can set it by in the refrigerator and it will keep.

Mr. QUIN. We are not dictating to Mr. Ford where he is going to put that power.

Mr. FOLMAR. I understand.

Mr. QUIN. He has to carry out this great burden which he agrees to do, to keep up that plant instead of making the taxpayers keep it up; he has to make that fertilizer, and if it is produced here at half what it cost the farmers to-day, as a business man you realize if he puts 8,000,000 tons on the market a year, 40,000 tons of the fixed fertilizer, it will have the effect of producing cheap fertilizer in other sections, so that the farmers of the country will get this fertilizer at a reasonable price.

Mr. FOLMAR. Now, wait a minute there, and let me go up to you again this way: I sell, say, two or three hundred thousand tons of fertilizer to the farmers. What kind of a condition would I be in if Mr. Ford was making 8 per cent on that? He says, "I will make it provided," if I understand, I do not know, "provided I can get 8 per cent. I will make it for 8 per cent profit."

Mr. QUIN. He can not make over 8 per cent; he can not charge over 8 per cent profit.

Mr. FOLMAR. I understand that; but there is a way of eating the pie and making the other fellow think he is going to get something that he won't. I know you people can cope with that; I know you people can handle that, as I see your faces around this table. The point I want to make, my friend, is this: If Mr. Ford, or any other individual, or any corporation has a contract with the United States of America which says he can furnish this fertilizer at 8 per cent above cost, and he finds out he has gotten through with a pretty good loaded cost, and he has gotten 8 per cent on that, and he finds he is making a good bit of money out of fertilizer, Mr. Ford might adopt a plan, unless you put the

proper punctuation to it—Mr. Ford might say, "Mr. Folmar, you have been using 3,000 tons down there to your farmers, or 2,000 tons. I am making 8 per cent on that 2,000 tons. I am shipping you, by the next parcel post, 3,000 tons, making 6,000 that you must use, or else you can not have any."

Mr. QUIN. You are not familiar with Mr. Ford's offer. This is regulated by Federal agents, by a board.

Mr. FOLMAR. That is all in the world I am saying.

Mr. QUIN. It is punctuated all right. We are binding him on the fertilizer end. He is the only man who has made us any kind of a decent proposition for the fertilizer part. We are going to protect the farmers; you need not worry about that, and I am surprised a man of your business ability would come up here and obstruct and try to put it off on a line the taxpayers of this country never intended, because it would be doing a violence to the law and we would be falling into a trap ourselves for the future.

Mr. FOLMAR. As the man who just vacated this chair here (Mr. McSwain) rightfully and properly said just now, that he did not want any remarks made that he would sell out, and so on, and he is perfectly right in that, would I not be right in saying that I have not indicated anything here that would take the course you are talking about.

Mr. QUIN. No; but you propose to take and divert this from the purposes for which it was intended, by diverting it there by carrying current to some business.

Mr. FOLMAR. Some concern.

Mr. QUIN. Or towns. This was never intended for that purpose at all; it was never intended for that.

Mr. FOLMAR. It was never intended for that?

Mr. QUIN. No; this act was created—all you have to do is to look at the law we enacted, and you will find those two purposes. That is what this committee worked on, as a national matter strictly. Of course, Alabama has no more interest in that dam on the Tennessee River than Mississippi, Georgia, or, for that matter, Oregon, Montana and all the other States. All the people are interested in it.

Mr. FOLMAR. Surely. And I do not think I made a single remark to claim that we should have it.

Mr. QUIN. No; except for local distribution.

Mr. FOLMAR. Yes, sir; I do say that if it is practicable in your contract you made up here with these people, we would like to have a part of it as early as we can, to cover that whole country with it.

Mr. QUIN. We can not dictate to the man who takes upon himself a burden to carry out what the Government does not want to do itself. It costs too much money to keep that in a stand-by condition to make fertilizer. We could not make fertilizer. Under this contract, the fertilizer part is going to be just like the sawmill dust; he is going to get his profit out of the other elements. You need not worry that Mr. Ford does not know what he is doing.

Mr. FOLMAR. I know he knows and, Mr. Chairman, I have not said a word have I, relative to not giving it to Mr. Ford?

Mr. MCKENZIE. I did not so understand. I want to make it clear that we are working rather in the interests of the people than in the interests of Mr. Ford.

Mr. FOLMAR. If I made a statement, and any of you gentlemen on this committee understood that I made any statement to give it or not to give it to anybody, I withdraw that statement now. But I do say that I want you to place (and I tried to punctuate that by saying I believe you will do it)—I do not want you to let that contract to anybody and let it get away from the super vision and management of the Government of Uncle Sam.

Mr. MCKENZIE. We are very much obliged to you, Mr. Folmar.

STATEMENT OF MR. R. I. INGALLS, BIRMINGHAM, ALA., PRESIDENT OF THE INGALLS IRON WORKS CO.

Mr. INGALLS. I am president of the Ingalls Iron Works Co., of Birmingham Ala. I came up here as the representative of the Alabama Manufacturers' Association, an organization composed of manufacturers, merchants, etc. I also happen to be president of the Birmingham Chamber of Commerce, but I am not appearing here as a representative of that organization.

I would like to discuss this matter as I would any subject before a board of directors. I am not here to argue for or against anybody, but to state all points as they appear to us as manufacturers and citizens in that section and to give you our viewpoint.

With your permission, I would like to read a telegram which was relayed to me here at Washington by the president of our association. This wire reads as follows:

"We desire to have you state our views to entire Committee on Military Affairs, House of Representatives, as expressed in our wire to Chairman Kahn of January 24, if it has not already been done."

The Associated Industries of Alabama, of which I have the honor to be president, and which has a membership in 47 counties in this State, with invested capital in industries amounting to about one-half a billion dollars, employing approximately 130,000 people, with an annual pay roll of approximately $130,000, are much concerned in the disposition of Muscle Shoals. In the consideration of its disposal, this organization believes the power from this source should be placed in the hands of those whose sole business is the distribution of power throughout the State, thereby furnishing service to those now there and inducing others to come to aid in the State's development. In the consideration of this question on the part of your honorable committee we hope the interests of the State as a whole will be recognized and the disposition of Muscle Shoals be placed in the hands of those that are prepared to give it the service.

Gentlemen, I am in the steel business. I am a native of Ohio. I went to Birmingham in 1910. At that time the Alabama Power Co. and the Birmingham Railway, Light & Power Co. served, in a small way, electricity to the various industries. We started in a very small way and at that time used but one 10-horsepower motor. To-day we are operating about a thousand or more horsepower, I would say. That shows the increase in the use of electric power.

We are primarily a coal-mining and iron-ore section. Our coal mines, I believe, over 50 per cent, are operated by electricity generated by hydroelectric power. In other words, they find it cheaper to buy power from the power company than to try to generate it with their own coal. This has been rather a bitter pill for the coal man, everywhere, and I am interested in the coal business, but we have had to accept the enevitable.

During the war I believe I can say with propriety that there was no section of this country which functioned as successfully as the Birmingham district. That was for several seasons. The first one was that we had natural resources; that is, we had our coal; we had our iron; we had our fluxing materials, all within a radius of a few miles. We had a very great abundance of native labor and we were able and did supply in proportion more materials for the prosecution of the war than any other section.

I believe, for that reason alone, that you gentlemen, in your deliberations, should give very careful thought to what we would mean in a great emergency such as we have recently passed through. You are probably aware that the Government is at this time compiling records and making a survey of all of our industries in this country, in order that we may be better prepared should we again be in conflict, and I am reliably informed that more attention has been given to the Birmingham district than any other part of our country. It is conceded that we make the cheapest pig iron and, of course, you gentlemen in Illinois, the chairman being from that State, I believe, and the gentlemen from Texas, and the balance of you, are all getting the benefit of that cheap power that we are obtaining from the power company.

We, in Alabama, in Birmingham, produce about 35 per cent of the cast-iron pipe—that is, the water pipe—used in this country. We are the only district to-day which I believe can successfully keep out foreign competition. In Luxemburg, Germany, to-day they are making a bid for our business. It may be of interest for you gentlemen to know I can buy bars for delivery at New Orleans or Mobile, duty paid, and they can compete successfully with our northern and with our southern mills. We consider that the only way that we can expect to curb that competition is to produce our materials cheaply. God gave us nearly everything we have and we are trying to make the best use of it.

Now, as to Muscle Shoals, the question has been asked here, "Did the Birmingham Chamber of Commerce, did the associated industries of Alabama, think about this some time ago?" I would like to anticipate that question and say that the Birmingham Chamber of Commerce, of which I have the honor to be

president, has taken no formal or official action in this matter, but the associated industries or manufacturers of Alabama have been considering this for a long time. We never believed, if you will pardon me, that Mr. Ford was considering seriously this proposition. We have recognized, among us manufacturers, that he is a genius and have believed that in time he would invade the South. He has done that and is now doing it, but he is doing it in a way entirely different than you gentlemen think he will do it if he gets Muscle Shoals. For instance, he is building in Louisville at this time an assembling plant; he is building one at Charlotte, N. C.; he is building one in Memphis; one at Jacksonville, Fla.; and one in Dallas. I was in his office, or in the Detroit factory, on the 31st day of December, and I asked one of his men if he was coming to Birmingham or to Alabama. He says, "No." I said "Why won't you, if we can meet you on a reasonable or sane basis?" He said, "We have found in our investigations that it is not as good a distributing point for our cars as the other southern cities we have selected."

Now, I can not see, from a manufacturer's viewpoint, what Mr. Ford would want with Muscle Shoals. Of course, he might say that is none of my business. But I am trying to analyze this thing as a manufacturer would. He certainly would not want to build cars there. In the first place, it would be a poor distributing point. It would be manifestly unfair, if he was to ask for a subsidy from the Government and expected to compete with that advantage, with the cotton mills, the hosiery mills and cotton gins, and steel mills. That would not be fair.

Now, I want to say a word in defense of the Alabama Power Co. They have been a political football. Why, I do not know. I do know, in studying their case, that they came to Alabama and invested money when our own folks were letting these streams unharnessed run on to the sea. I do happen to know, because we sold them the materials, that at one time they were in desperate shape. That was during the war. I do know that they buy, so far as possible, all the materials they can get in the State of Alabama. Their credit is good, and to-day the securities they are offering are going to the people of Alabama. I have in my organization, shopmen, laborers, draftsmen, and other men in various departments, who own their stock and securities, and before I left one of the men came to me and said: "How about this Alabama Power Co. stock?" He said: "We believe in that outfit, but it looks as though they are going to get the worst of it up in Washington." I said: "Do not think about that; I believe when that thing is sifted down, that the committee handling it will go into the merits of the proposition and the man who makes the squarest and best offer will get it."

Now, so far as we manufacturers are concerned, we would like to have the power. We believe it is to the advantage of this country, for you people in Illinois, Iowa, and Texas, to see that Alabama, the Birmingham district, is never without power. If we have a war, there is no district which will make more war materials, that can function as well, as our district. To-day, you are getting the benefit of cheap water and soil pipe and other things which we produce, due in part to our cheap power rates.

I presume you gentlemen would like to ask me some questions, but I would like to request that you ask me, as one business man would ask another. I am not a politician; I am not up here for anything other than to be constructive in my suggestions, and I would be very glad to answer the questions you propound the best I can.

Mr. McKenzie. I am very glad you made the statement you did, saying you wondered why Mr. Ford would want this proposition. I think you take the view that every practical business man, at least every business man who has his money invested in a corporation, takes, and that is you would be glad indeed to get the benefit of that fellow down there if you could just escape the responsibility that the Ford offer carries along with it.

Mr. Ingalls. No; Mr. Chairman. I think it is your duty, as Members of Congress and this committee, to accept the best offer you can get. If Mr. Ford's offer is better than the power companies, accept it.

Mr. McKenzie. You will pardon me; we, of course, look at it from the standpoint of the representatives of the entire Nation. You come here representing yourself and other business men and you look upon this proposition as a purely business proposition. Now, you undertake to say to us that "the Alabama Power Co., or the allied power companies, has a better proposition for the people of this country in that we can buy power from them; the other institutions in the South engaged in manufacturing can buy power from them and, therefore,

it will be better for the South." We are not only interested in that (we do not criticize you for that; there can be no criticism made), but we are also interested in the other two fundamental propositions as laid out here by Mr. Quin a short time ago. One is the maintenance of that great plant established there for national defense, and the other is the carrying out of the provisions of section 124 of the national defense act, on which we are acting, by virtue of which we get control and jurisdiction of this legislation, to manufacture fertilizer, or attempt to, in time of peace. Now you business men—and I do not blame you—want to side-step that, very naturally.

Mr. INGALLS. Mr. Chairman, I have not taken the time to analyze these two proposals that I would like, but I made a rather hurried analysis of them and, in my judgment, if you will pardon me, just from a cold-blooded business proposition, entirely aside from anything else, I can not see, using the vernacular, Ford's proposition for the trees. Now, Mr. Ford proposes to pay $5,000,000—am I right—for this property?

Mr. MCKENZIE. Yes.

Mr. INGALLS. He has included in his proposition that you build for him a plant to take the place of the Gorgas steam plant. That is inconceivable.

Mr. MCKENZIE. No; he does not.

Mr. INGALLS. That is my understanding. If I am wrong, I stand corrected.

Mr. MCKENZIE. You are wrong to this extent, that he asks us to reappropriate the amount of money received from the sale of the Gorgas plant, to be utilized in the purchase of this right of way and the land on which the plant can be constructed, and also to be used, as far as it will go, in the construction of the plant. He probably will spend $10,000,000 on the plant.

Mr. INGALLS. Yes; but I understand the purpose of that was to be the offset for the property which the Government did sell and should have sold to the Alabama Power Co.

Mr. MCKENZIE. That is true.

Mr. INGALLS. In the sum of $3,472,487.25. Now, to my mind, gentlemen, that is inconceivable. That is unadulterated nerve, for any man to ask that you gentlemen do that. He is getting something; that is, the dams, which have cost you, up to some time ago, about $17,000,000. He does not propose to pay you anything for that $17,000,000 in the way of interest, which, at 4 per cent, amounts to $680,000 a year, and which in 100 years will be $68,000,000 at simple interest; and if you build him that plant on Warrior, then he would have reduced his purchase price to $1,500,000. In other words, you are simply giving him that great potential resource.

Now it seems to me if he was very much in earnest about it, just from a sporting proposition, he would be here to-day talking to you fellows. I can not understand why, if he wants it, he is not here. Of course that may be aside from the discussion. But I know down in Alabama, where we are trying to do things, that when we want anything we generally go after it. Down there they claim we Yankees come in there and take things away from them. I have lived in Alabama now for fourteen years and I want to live and die there. That is the best place I have ever found, and I share the belief that if this man wanted this property he would be right up here scrapping for it.

Mr. MCKENZIE. Do you think there is any objection to calling his bluff? Do you think it is a bluff?

Mr. INGALLS. Well, I do not know. I think he has money enough to go through with it, but I do believe this, that if he acquired the property and he attempted to use it without being under the same control that you require of the other utilities, that it would be a terrible thing. It would be decidedly unfair.

As I understand, he does not propose to operate under or assume the obligations of the Federal water power act. I understand also if he made his electricity, acting as a parent or holding company, sold it to some subsidiary, that he could escape the operation of the act, or would not come under the operation of the Alabama law. Now, if I am wrong in that, I would like to be corrected.

Mr. MCKENZIE. Well, you mean he will not be subject to the provisions of the water power act which gives the Government the right of recapture at the end of 50 years?

Mr. INGALLS. Yes. And I also understand in his proposals (which, of course, means the terms and conditions of his contract if written), he does not say he will operate under the Federal water power act. Would he be willing to have that written into his contract by you?

Mr. McKenzie. Of course, I do not wish to get into a controversy over it.

Mr. Ingalls. I understand. I am just asking for information from the committee.

Mr. McKenzie. It is the understanding of the committee, at least it is my understanding, that if Mr. Ford, after getting possession of this property, undertakes to sell power or to do any other thing that would violate State law or the Federal law, controlling rates, etc., he would be subjected to those rates and regulations the same as anyone else.

Mr. Ingalls. I see.

Mr. McKenzie. That would not be optional with him. The law itself would bring him within its purview.

Mr. Ingalls. Well, of course, that is possible. Now, I think it would be very unfair, of course, to subsidize to Mr. Ford to the extent of giving him that plant cheaply and then asking the utilities which are under State and Government control to meet him in competition. That would be very destructive and in time would upset our whole commercial and economic situation.

Mr. McKenzie. Let me ask you this question: If Mr. Ford, in good faith, carries out all the provisions of his proposal, do you think he will have much of a subsidy, looking at it now as a business man?

Mr. Ingalls. Yes; I do, in comparison, and that is what you gentlemen must decide it upon. Are you getting the amount for the Government that you possibly can? Mr. Ford, if he lives out his natural string, is not going to be here very long. We admit that. His business is going into the hands of God knows who; I do not. He has one boy, I understand, who is a very fine fellow, constructive in thought and action; but you are going to have that in private hands, that great potential force, you are going to have it in the hands of, say, one or two shareholders, whereas if that goes to some outstanding utility, one which has a good record, one which is strictly under Government and State control, with immense number of shareholders, as they have in that State, do you not think, Mr. Chairman, that that project would be carried out to a better and more logical conclusion? I do.

Mr. McKenzie. Well, you understand that in the beginning Mr. Ford did not contemplate organizing a corporation, do you not?

Mr. Ingalls. Mr. Chairman, I only know what his present proposal indicates or contemplates. I did not know that; no, sir.

Mr. McKenzie. And, is it not a fact that was brought about by the insistence of the men interested in representing the people, that human life is limited?

Mr. Ingalls. Yes.

Mr. McKenzie. And I have always been glad that that is true personally, for a good many reasons; and, realizing that we have required that there should be a corporation organized and, not only organized, but that there should be a cash capital of $10,000,000 with the cash paid in unincumbered, as a basis to start on, in order to protect the people against Mr. Ford's death or the death of his son.

Mr. Ingalls. Mr. Chairman, has Mr. Ford taken you into his confidence and told you just what he is going to do there?

Mr. McKenzie. I never saw Mr. Ford in my life.

Mr. Ingalls. I know; but have they attempted to do that? I would like to know, as a matter of information. We in Alabama do not know a thing about it; we hear that Ford has not said what he is going to make up there, nor what he is going to do with it. We have never seen a statement of what he was going to do with it. He can not sit there and hold up plant No. 2 to make nitrates, unless he is going to do something with it. He certainly is not going to manufacture automobiles there. We do not want him to manufacture textiles, that is, we do not want him subsidized. If he goes out and pays you gentlemen what the Government has put in there, it would be a different proposition; but it would not be fair, it would tear down our country, for you to give any man that plant to go out and operate it in competition with private capital. That would not be fair; you can not do it.

Mr. McKenzie. It would be destructive to whom?

Mr. Ingalls. It would be destructive to our economic structure, the business structure; for instance, would it be fair for business men to take their money they had worked for and accumulated and go down in Alabama and buy or build a plant to manufacture textiles; to put their money there, and then for the Government to come along and give Mr. Ford a great subsidy, which it

will amount to, so that he could go there and put up textile mills, put up steel plants, and put up many other things, and manufacture materials—why, we could not compete. We can not all have it; only one party can have it. Now, would it not really be best to take that power, if he wants to be a public utility, and give it to him, or to give it to anybody and make him pay what it is worth and to say "Gentlemen, you must operate under the Federal water power act; you must be subjected to the State laws and, when you do that, you must sell your energy to anybody who has the price to buy it, at a fair price." Is not that the sensible way to look at it? That is the way I see it, as a business man.

Mr. McKENZIE. That may be your view of it. Of course, the committee has not endeavored to take the view of granting a subsidy to business men.

Mr. INGALLS. I understand. I think you have been very tolerant and fair.

Mr. McKENZIE. I assume, coming from the State of Ohio, you were raised a Republican in politics; you may have changed since you have been down there?

Mr. QUIN. Oh, they all change after they come down there. [Laughter.]

Mr. McKENZIE. The reason I make that statement is because the argument you have just been making sounds somewhat familiar to me, about always protecting infant industries; but in this case I do not think it is logical to make the argument.

Mr. INGALLS. In politics, I am sort of straddling the fence; it depends upon the quality of the man and the issue. My good friend, Oscar Underwood—you know we, from Alabama, can not go against Oscar. [Laughter.] You know, down in Alabama, we are Democrats. [Laughter.]

Mr. HULL. I was not here through all of your examination, but as I understand it you are in favor of letting this power to some corporation that will distribute it to consumers over the States that are interested and under the Federal power act. Is that right?

Mr. INGALLS. Yes, sir; absolutely. I think that that is a sensible thing to do. And, after all, you have to approach this along that line, if you want to get anywhere with it. I believe the constituents of our Representatives from Alabama have a different view entirely now. Lots of them are going into this matter. They are for Ford if Ford will do the most for us; if he won't, why they are not for Mr. Ford. We want to get the energy in Alabama which we need very badly now. We need it to develop our resources and, in case of national emergency, we are going to do more for the Government than any other place. In fact, we have the only big body of ore, the only big body of coal and limestone available. We do not have a transportation problem; we do not have snow, we do not have sleet, and we get an abundance of native labor, and if you want to fortify this country of ours against a breakdown in a crisis, take care of Alabama's resources.

Mr. HOWELL. You want us to look at it in just a cold-blooded business way?

Mr. INGALLS. Why shouldn't you, gentlemen?

Mr. HULL. Well, I quite agree with you.

Mr. INGALLS. Yes.

Mr. HULL. And disregard——

Mr. INGALLS. Sentiment, entirely.

Mr. HULL. Disregard all sentiment, and just look at it as just business men.

Mr. INGALLS. Yes, sir. The Alabama Power Co.—I want to tell you we got after them down there sometime ago. We want cheaper rates; it is part of our costs, and if they do not do business right, we get behind them with a sharp stick, and they come across. We tell them we want a reasonable rate and they give them to us. We have the cheapest power in the country.

Mr. JAMES. What do you think about the fertilizer part of the Ford offer?

Mr. INGALLS. Mr. James, I must confess I am not very qualified to speak on that subject. I would like to discuss it with you, to answer any question you want to ask me, but if I do not know much about it it is because I do not know my subject; I have not studied it. I do believe we want cheap fertilizer. I happen to know of one man who is interested in the power company fertilizer scheme, and I will say to you gentlemen I think he is a genius; I have reference to Theodore Swan. He is a young man who came to Alabama from east Tennessee and during the war found manganese ore and made ferromanganese for the Government. His plant was idle after the war, and through research work and working from 10 to 15 hours a day, that man has discovered a new process for making phosphoric acid, and I think he could, if he desired, be a big factor in the phosphoric-acid market; and if it is put in his hands, along with some

other gentlemen, I believe they would work out the situation so that the Government would get fertilizer cheaply. I believe any business, to be successful, you must consider the personnel equation which goes into it. We have new processes there now in trying to make nitrates from the air, and unless you put it in the hands of go-getters who get results, I do not think you will get anywhere.

Mr. JAMES. You do not care to express any opinion about the fertilizer section of the Ford offer?

Mr. INGALLS. I beg pardon?

Mr. JAMES. You do not care to express any opinion about the fertilizer section of the Ford offer?

Mr. INGALLS. If you just want my personal opinion, I will tell you what I think about it. I will tell you this: That is one of your requirements; you want him to make fertilizer; that is something he could not sidestep. I do not believe he knows how he is going to make it, or what he is going to make it with, or anything else. I may be wrong. That is just my personal opinion. I do not believe he knows just how he is going to make it or how much he is going to make.

Mr. JAMES. You understand he guarantees to make the equivalent of 2,000,000 tons of fertilizer per annum, do you not?

Mr. INGALLS. Yes, sir; I understand he says he will do that provided you permit him to make a certain percentage of profit. If that cost is excessive, then he won't have to make it, because the people who make it by the old-fashioned process will come in and get the business.

Mr. JAMES. No; there is no such wording. He has to make 2,000,000 tons of fertilizer whether he makes money or loses money.

Mr. INGALLS. You know, my dear friend, he could not stand the gaff (meaning making fertilizer at a loss) very long; that 100 years might dissipate his whole fortune.

Mr. JAMES. There is not any doubt about his making a return.

Mr. INGALLS. He can spend the $10,000,000; that does not mean a thing in his life; he can make it in two or three weeks. Mr. Ford intends, I understand, to form a corporation with $10,000,000. It would not take any time to dissipate that $10,000,000; and then, if his heirs, successors, and assigns did not see fit to carry on that work, they would default and you would get the plant back again.

Mr. JAMES. But if he spends $80,000,000 down there, through putting up other property, and he would not do that if he did not know what he was going to do.

Mr. INGALLS. Do you believe he is going to spend $80,000,000?

Mr. JAMES. I think he would.

Mr. INGALLS. I do not believe he would.

Mr. JAMES. You have not read the evidence, have you?

Mr. INGALLS. No, I have'nt. I say I do not believe he would; he might.

Mr. WURZBACH. Mr. Ingalls, both of these proposals, that of the allied power companies and that of Mr. Ford, provide for fertilizer production, do they not?

Mr. INGALLS. Yes, sir.

Mr. WURZBACH. In about equal amounts?

Mr. INGALLS. Substantially the same, I would say.

Mr. WURZBACH. The Government expert, Doctor Cottrell, I think, stated he thought it would be more practicable to use nitrate plant No. 1 than to use plant No. 2.

Mr. INGALLS. That is the Haber; yes, sir; that is right.

Mr. WURZBACH. Yes; the Haber process. Now, then, so far as that part of the proposal is concerned, they are about equal, are they not?

Mr. INGALLS. They are substantially the same, I would say; yes, sir.

Mr. WURZBACH. With reference to the remaining part of the power that is developed there, the allied power companies propose to combine themselves to use that power for distribution among the users in that section of the country—Georgia, North and South Carolina, Tennessee, Alabama, and so on?

Mr. INGALLS. Yes, with that superpower system.

Mr. WURZBACH. Yes.

Mr. INGALLS. Relaying it across the country; yes, that is right.

Mr. WURZBACH. And that power is to be distributed to the industries, cotton mills, etc.?

Mr. INGALLS. That is right.

Mr. WURZBACH. There is no guaranty on the part of Mr. Ford how he expects to use that power?

Mr. INGALLS. I do not think he knows.

Mr. WURZBACH. I think the hearings indicate that he intends to use that power in his own private enterprises established or near Muscle Shoals.

Mr. INGALLS. Do you happen to know what those enterprises are? I am just asking for information.

Mr. WURZBACH. Oh, I heard an aluminum factory mentioned, and some other industries.

Mr. INGALLS. I see.

Mr. WURZBACH. I will ask you the same question I asked Mr. Folmer.

Mr. INGALLS. Yes, sir.

Mr. WURZBACH. With the cheap power given to Mr. Ford, in the nature of a subsidy—and it is a subsidy if it is given to him for less than it is reasonably worth—would there not be greater danger of hurting the industries in that section of the country, cotton mills and others—would there not be greater danger in their being destroyed because they were not able to compete?

Mr. INGALLS. Absolutely, with his intensive method and cheaper cost. It would be a matter of destruction; they could not stand it. It is unthinkable, to my mind, to place those men, who have invested their money down there in good faith, in that sort of a position.

Mr. REECE. You are evidently a business man in whom your associates, who know you, do place confidence as evidenced by the positions you hold. You are also in a way familiar with the officers of the associated power companies which are submitting a bid; you know something of their characteristics and the characteristics of the companies. Is it your opinion that their bid for Muscle Shoals plant is made in good faith?

Mr. INGALLS. Absolutely.

Mr. QUIN. What per cent is the fuel expense in the cotton manufacturing business?

Mr. INGALLS. Mr. Quin, I could not tell you. I am not a textile man; but I know it is one of the direct costs and is a very big factor, maybe 8 or 10 per cent of the cost.

Mr. QUIN. Would you explain how it is that all these cotton mills that are running by water power, some in North Carolina, some in your State, and that put all these mills in my State running on coal out of business?

Mr. INGALLS. What State is that?

Mr. QUIN. Mississippi. We pay a devil of a big coal bill, and the railroads charge a good rate, and we compete with you and run there night and day.

Mr. INGALLS. That is too big a question for me to answer.

Mr. QUIN. The truth is that all this hullabaloo we are hearing about being driven out of business is a smoke screen, for you have water-power mills there, and we have steam-power mills right across the creek over in Mississippi, which are running and there is not any trouble between them, and you people have not put those mills out of business down there. And where I buy, I buy from my own mills over there, and you have not reduced the price of cotton goods; North Carolina has not reduced the price of cotton goods.

Mr. INGALLS. If you will ask me a little about steel, I can tell you more about it.

Mr. QUIN. I know about steam; I know something about what steam cost. I know something about this business. That is all moonshine, put out here as a smoke screen, to tell you the truth, about Mr. Ford going in there and putting somebody out of business. You can ride out here in an automobile, in any part of the country, and find plants which are being run by water power, and you go right across from there and you will find other plants running by steam, and down in Mississippi we pay high freight rates and compete just the same.

Mr. INGALLS. If you had to wrestle with the propositions of overhead of some manufacturers you would probably think and take a different view, and if you will pardon me just a moment, we have taken the time, and now have in our organization an efficiency expert—efficiency is not anything more than the application of common sense—and would you believe me if I told you that a 3 or 4 per cent item of cost might either make or break a company?

Mr. QUIN. That depends on the size of the company.

Mr. INGALLS. Do you believe Henry Ford's success is due to anything except intensive production? He exacts his pound of flesh and makes his pound of profit; and, if he gets down there with his intensive methods and unlimited resources, plus a subsidy from you, he is liable to make somebody look like 30 cents.

Mr. QUIN. Would he not be helping the mass of the people and the people would get the benefit of it from the operation of the law of the survival of the fittest?

Mr. INGALLS. What do you mean? We have 132,000 employees depending on us for jobs.

Mr. QUIN. But this man might go out and employ four or five hundred thousand and gather up a whole lot of those and a whole lot more.

Mr. INGALLS. If you fellows want to see us put out of business and have it turned over to him, that is a different thing; but there are a lot of us to only one "Henry."

Mr. QUIN. This man has done more for the people than all the rest of you in the country combined.

Mr. INGALLS. He has done more than the rest of the people? I do not believe it.

Mr. HILL of Alabama. Mr. Ingalls, were you present at these hearings this morning?

Mr. INGALLS. Yes, sir.

Mr. HILL of Alabama. You said the Birmingham Chamber of Commerce have not thought much about this thing before, because they thought that Mr. Ford was bluffing, did you not?

Mr. INGALLS. No, I did not say that; I said this, they might have considered it but they never considered it seriously, or officially, and I do not speak for them here.

Mr. HILL of Alabama. They had never considered it seriously?

Mr. INGALLS. They did at one time take formal action to this extent: They sent Secretary of War Weeks a letter commending him for his having carried out the Government's obligation to sell to the power company the Warrior plant.

Mr. HILL of Alabama. But they did not look at it seriously down there?

Mr. INGALLS. Well, they never thought—I have had just an informal discussion with a few members—we just thought Mr. Ford was never serious.

Mr. HILL of Alabama. They did not think Mr. Ford was serious?

Mr. INGALLS. Yes.

Mr. HILL of Alabama. You had a great mass meeting in Birmingham, did you not, commending this offer?

Mr. INGALLS. No, sir.

Mr. HILL of Alabama. You did not have a mass meeting commending this offer?

Mr. INGALLS. No, sir.

Mr. HILL of Alabama. All of your county officials did not send a petition to this committee and the Alabama Representatives in Congress, urging them to get the Ford offer accepted?

Mr. INGALLS. I did not know it.

Mr. HILL of Alabama. You did not know they signed this petition?

Mr. INGALLS. I did know there was a lot of gum-shoe work going on down there; I thought there was, for the Ford proposition.

Mr. HILL of Alabama. Your interest in this thing is of recent date, is it not?

Mr. INGALLS. No, sir.

Mr. HILL of Alabama. You did not know about the mass meeting being held and the petition being sent to this committee?

Mr. INGALLS. No, sir. If you ask the people, I have never heard a half dozen people say they were for Ford down there.

Mr. HILL of Alabama. You are a business man, I believe, Mr. Ingalls?

Mr. INGALLS. Yes, sir.

Mr. HILL of Alabama. You are president of the chamber of commerce?

Mr. INGALLS. Yes, sir.

Mr. HILL of Alabama. Would you make a contract for your corporation with another corporation, if this other corporation was in danger of having its charter revoked?

Mr. INGALLS. Well, go a little further; just what do you mean?

Mr. HILL of Alabama. I just mean that the court—that the other corporation was in danger of having its charter revoked; which, of course, would take away any powers it might have. Would you make a contract with that kind of a corporation?

Mr. INGALLS. Well, I would not want to do business with any concern that would do anything that would result in the charter being revoked.

Mr. HILL of Alabama. You would not want to do business with a concern of that kind?

Mr. INGALLS. No, sir.

Mr. HILL of Alabama. You would not recommend that the Government of the United States do business with a concern of that kind, either, would you?

Mr. INGALLS. I think you might make clear just what you mean.

Mr. HILL of Alabama. The Tennessee Power Co. is to-day in the equity court in the State of Tennessee, having been brought there by the attorney general of the State of Tennessee, the attorney general asking the court to revoke the charter of the Tennessee Power Co. because of a violation of the statutes of the State of Tennessee.

Mr. INGALLS. Has it been decided, or is it just in court?

Mr. HILL of Alabama. The suit has been tried and is now in the bosom of the court.

Mr. INGALLS. Has a decision been reached?

Mr. HILL of Alabama. I do not know.

Mr. INGALLS. I think it would be ill advised to discuss it, then, if a decision has not been reached.

Mr. HILL of Alabama. Would you make a contract with a corporation, though, while they were in that position?

Mr. INGALLS. I think I would give them the benefit of the doubt. I think to-day the business man is the biggest, squarest—that is, the majority; there are some skunks—I think the majority of them are the biggest, squarest people you will find. That is a hypothetical question which you ask, and inasmuch as I do not know what you are speaking about, I would rather not answer it.

Mr. HILL of Alabama. You would rather not answer it?

Mr. INGALLS. No; I would rather not answer it.

Mr. QUIN. You know it might be embarrassing to this gentleman, and I would not ask him to answer that.

Mr. HILL of Alabama. That is all.

Mr. GARRETT. You understand that this proposition was up in the last Congress as the McKenzie bill, and it is now before Congress, was recommended for passage, excepting the Ford offer, in the last Congress?

Mr. INGALLS. Yes.

Mr. GARRETT. Then, I understood you to say that you people down there, nobody else having come forward at that time, did not consider Mr. Ford was in earnest about it. Now, the proposition has not been changed in any of its material points in the present bill. When did you all decide that Henry was in earnest?

Mr. INGALLS. I have not made up my mind yet that he is. That is my personal opinion.

Mr. GARRETT. Then, if he is not in earnest and does not carry out this contract, or make it, your people will not be any worse off?

Mr. INGALLS. I think he has some terms and conditions that you gentlemen, in your wisdom, will not agree to, and therefore you will not make it with him.

STATEMENT OF MR. ELON H. HOOKER, NEW YORK; UNITED STATES MUSCLE SHOALS POWER & NITRATES CORPORATION.

Mr. MCKENZIE. We have one more proposition, which has been submitted to us by Mr. Hooker, and he wants to tell us, briefly, what his proposition is.

Mr. HOOKER. Is it not too late in the afternoon, Mr. Chairman, for me to tell you anything about a new proposition?

Mr. MCKENZIE. We have to finish. The committee some days ago passed a resolution to close the hearings at the end of to-day's work. For that reason we have to get your testimony in to-night.

Mr. HOOKER. I am very glad to give it; but I did not want to give it when you were tired out and would not want to hear it.

Mr. MCKENZIE. That is all right; we will listen to you.

Mr. HOOKER. In the first place, let us clear the decks about the relationship here. I have no interest in any Southern power companies; I do not own a share of stock in anything in Alabama or in any Southern State, and I have not seen Mr. Martin and do not know him by sight, and I have never seen Mr. Ford.

I have approached this matter of Muscle Shoals from quite a different standpoint from anything that has been submitted to you heretofore. I have brought down here with me one of my associates, who built Nitrate Plant No. 1 and its entire surroundings, and also who built the $12,000,000 steam plant at Nitrate Plant No. 2, so you see we are familiar with the Muscle Shoals enterprise as it stands and have had much to do with its construction. I have also

asked my brother, Mr. A. H. Hooker, who is our chief chemical expert, to come down with me so that if my own limitations of knowledge (for I am not omniscient) do not meet your requirements, I think we can answer any question among us which you may care to ask about this enterprise.

Mr. McSwain. Will the gentleman tell us a little bit about his history, who he is, and whom he represents.

Mr. Hooker. First, I was trained as a hydraulic engineer, here and in Europe; as a builder of water power dams and canals. I later went into the chemical industry, applying water power to chemical manufacture, and am now President of the Hooker Electrochemical Co., at Niagara Falls, which consumes one-fifth as much power as all Dam No. 2 will generate when it is finished, and have been using that power for 15 or 20 years, so you can see I am somewhat familiar with paying power bills.

I have approached this enterprise from the point of view of the chemical side and associated with me are some gentlemen who have had much to do with the building of the great construction works of the country; who have in fact built more than Mr. Ford has, and also among us we are the employers of as much labor as the gentleman represents who just spoke here for the whole associated industries of Alabama. I mean by that we employ some 150,000 men.

It has seemed to us that this whole Muscle Shoals enterprise, from the beginning, involved so much of the country's natural resources and reached out in so many ways, that it was out of the question that this natural resource should be turned over to anybody, and we have approached the whole matter from the viewpoint that the country ought to keep Muscle Shoals and ought to keep those great plants and ought to sell out to nobody but should retain in great measure the interest in everything that comes out of them.

Therefore, the proposition I have here to-day is one based on the idea of service from competent men, who can help the United States make all it can out of the natural situation there, and work with the United States as its partners, in trying to develop Muscle Shoals in the interest of the whole country, for the greatest benefit of all the people. In making the suggestion, I have tried to limit the return to us to what I think you would feel was a moderate return, if the enterprise were successful; and, of course, if it were not successful, the return would amount to nothing but a loss to us.

We have, among us, gone over very carefully the bids which have been submitted so far, and this is the conclusion we reach—that Henry Ford is offering you gentlemen for that entire enterprise the total that the United States will get out of it over a period of from 50 to 60 years, from $70,000,000 to $80,000,000. His bid is based on 100 years, and it amounts to something like $169,000,000 in 100 years. But I do not believe that you gentlemen are going to let anybody have that enterprise for 100 years. I believe that the water power act, allowing great public franchises from time to time to return into the public basket. you will all agree was a very wise one, and I do not want to see you let me or anybody have that proposition on any other basis than approximately 50 years. When it comes back, it can be revaluated and you can start over again.

At Niagara we started our enterprise 20 years ago with one-sixteenth—no, one forty-eighth—of what it is now, and we never dreamed of its being more than 16 times what it was, in the remotest imagination, and now it is so much larger that I feel that is the way things are going in this country, and I think the values at Muscle Shoals are away beyond anything we can pretend to figure now. Of course to us engineers who are accustomed to figuring exactly, it is ridiculous to pretend to figure future profits, anyway, but you have to do it in this proposition to make any fair comparison.

I am going to be brief; I am going to talk to you perfectly frankly, boldly, and bluntly. I have no ax to grind. I have an offer to make. If you gentlemen do not think it is better than any offer that has yet been made, I do not want you to take it, and I would not have made it unless I thought it was better than anything that had been made.

Mr. McKenzie. I think it would be well, inasmuch as this committee is quite familiar with the offers, if you would just discuss your offer and point out the merits of it to us, and not to draw any comparisons, and it will help us to get along. Just tell us the features of your proposition and what you propose.

Mr. Hooker. Mr. Chairman, my proposition has to be judged in the light, for instance, of what the War Department, or whoever your experts are, would figure was the relative advantage to the country of accepting it, and, therefore, I feel somewhat under obligation to use these figures, which I am perfectly willing to leave to the War Department to verify. The figures we have arrived at are:

Mr. Ford's offer would give you, for 56 years, between $70,000,000 and $80,000,000; the Alabama and associated power companies, plus Carbide offer, would give you $157,000,000 in 56 years. I have no interest in either; I am trying to tell you the truth. Now, the offer we want to make to you will produce for the United States somewhere between $260,000,000 and $336,000,000, or twice as much as the Alabama Power Co.'s offer, plus Carbide offer—and this after setting aside $10,000,000 fertilizer for research.

That is the basis on which I would like you to consider our proposition, and I am quite willing that all of these figures should be left to the War Department to verify.

The suggestion we have is this, that the primary thing you ought to do is to get cheap fertilizer, if you can get it. The secondary thing you ought to do, from the point of view of the country as a whole, is to take care of your water power proposition. The third thing you ought to do is to get out of this whole thing as much as you can for the United States. I will run over the different paragraphs here as rapidly as possible. The essence of this proposal is that the United States shall furnish all the money required. We do not undertake to furnish any money here, except the $1,000,000, to show our good faith. That is not meant for capital; that is just to show that we mean business. I want to point out to you that, in my belief, this is exactly what every single offer made to you, so far, has been. There are such large sums already involved in the investment by the United States there, and there are such small sums offered by anyone to back up their offer to you, relatively, that in the last analysis it amounts to the United States furnishing virtually all the money for that enterprise. When we come here openly and say that we expect the United States to furnish all the money, I think we are doing, frankly, what you will find between the lines in most of the other offers. Where that is not the fact, the other offers so little that it relatively does not amount to very much.

In the second place, we are trying to offer you service. We approach this whole enterprise from the chemical side, from the electrochemical side, with our knowledge of the plants as they are down there, with the fact that one of my associates has built the Haber process at Muscle Shoals and has built the other Haber process for the Solvay Co. at Syracuse, which is successfully operating, as against the one at Muscle Shoals, which was not finished, and has prepared and designed the naval Haber process, which was to be built, but never has been; and the fact that we have recently, at Niagara, just finished a $600,000 Casale ammonia plant. With the advantage that we are chemical manufacturers ourselves, dealing in heavy chemicals and dealing with a line of things that can be manufactured at Muscle Shoals with cheap power, it seems to me we could give to your committee and to the country the service, the kind of business experience, which would be most likely to make the enterprise pay and most likely to enable this committee to realize, for the Government, the largest amount of money that could be made out of Muscle Shoals to reduce the cost of fertilizer or for reduction of taxation in general.

Our proposal is as follows: That for the first 10 years of the enterprise, the Government shall have two-thirds of the profit, and after the first 10 years, for the remaining 40 or 50 years, the Government shall have three-quarters of the profit.

On that basis, it figures out, on a conservative proposition, as follows: If we take the water power at the minimum wholesale price, the Government will make about $260,000,000. If we get any kind of a price at all commensurate with what we are accustomed to get in all waterpower developments of the country the Government will make about $330,000,000, as against the maximum of $160,000,000 it will get from the Alabama Power Co., and about five times as much as under Mr. Ford's offer.

The essence of this proposal is that the Government will furnish the money for both construction and fertilizer, of which they have already furnished pretty nearly all. Under most of these other offers, in one way or another, between the lines, you will find, in the last analysis, the Government is furnishing the money for fertilizer, either in the cost of fertilizer, to which 8 per cent is added, or whatever it may be. It works out that the Government comes pretty near to furnishing all the money. So our proposition is very little different from the others in this respect.

In the one case, if our figures are correct, the Government is going to get $330,000,000 and Henry Ford is going to pay you $70,000,000, and is going to get all the rest, which is probably $300,000,000 at least. Under our proposition the Government gets nearly all of it.

On the basis of the Alabama Power proposition, the Government gets twice as much under our plan, as it does from them.

The first thing we have provided in this contract is that this corporation shall at all times have not less than 75 per cent of the voting power of the stock of the corporation vested in citizens of the United States, free from any trust or fiduciary obligation in favor of any person not a citizen of the United States, for all time, this corporation having in mind Plant No. 2 and its relationship to the national defense. And I may say, gentlemen, I am chairman of the American Defense Society, and very much interested in all these matters of preserving our defenses in time of peace. That is one thing that we have insisted upon.

The next matter that comes up here is that Mr. Ford insists that Dam No. 3 shall be built as part of his proposition. We understand there is a general feeling in the South that Dam No. 3 should be built, because Dam No. 2 gives very little navigation, only a few miles up the river, and Dam No. 3 will add something like 175 miles to the navigation; and, as it is not going to cost a great sum of money and it really makes the expenditure of $45,000,000 on Dam No. 2 (of which about $30,000,000 has already been spent and there is $15,000,000 more to spend), it makes that great expenditure, as far as navigation is concerned, of value, and, of course, the power of Dam No. 2 if Dam No. 3 is built is improved. We do not insist that you build Dam No. 3, but we rather assume that you will.

Under the plan we have submitted here, on fertilizer, you are paying Mr. Henry Ford 8 per cent, and, as I understand, under the Carbide offer, you are paying them 5 per cent. Under our offer the maximum amount that you pay us is 2⅔ per cent, for the first 10 years; after that, 2 per cent. You pay 8 per cent into this corporation, but the Government has two-thirds of the returns and eventually three-quarters of the returns.

Mr. McKenzie. Do you get that return without having any investment. As I understood you, you do not have anything invested in that proposition?

Mr. Hooker. Well, nobody has any very material amount of money invested in this thing, Mr. Chairman. Our investment is a little smaller than the others seem to be. It does not assume to be anything; the others do not amount to very much. Ours is a little smaller than the others; we do not pretend it is anything—our return comes for service rendered.

Mr. McKenzie. If the Alabama Power Co. should pay for the two dams, that would be $45,000,000 and $23,000,000?

Mr. Hooker. The Alabama Power Co. are not proposing to pay for the two dams. The figures I gave you of $70,000,000 and $160,000,000 and over $300,000,000 are exactly the way the thing comes out, including everything that is paid by everybody. Let us be perfectly clear about this and not fool ourselves. I have read all these fertilizer propositions pretty carefully; I have read all these offers of investment of capital pretty carefully, and there are not any of them that have not a pretty wide open place that you can drive a wagon through and, in the last analysis, they almost all work out that, in one way or another, the Government puts up the money. So I have come out boldly and said we do not pretend to put in any money. We put in $1,000,000 to show our good faith, backed by our records of production, and our capacities, whatever they may be.

I did have in here, inasmuch as the power on Dam No. 2 and Dam No. 3 would be affected by the building of other dams up the river, a plan that we should have the construction of the dams up the river. But I have taken that out so as to leave you entirely free. You realize when I take it out, I am taking it out under an offer that we will operate on a 10 per cent profit basis on construction, of which we get one-third for the first 10 years and after that we get one-fourth. So that we only get 3⅓ per cent profit, for undertaking the construction work now, and we only get 2½ per cent for undertaking the construction work up the river, afterwards. But I have cut that out so as to leave you perfectly free. We do not even ask you to build No. 3, unless you choose to do so.

Now, whatever assets there are down there that are not needed for the operation of these plants, instead of taking those and selling them and applying the surplus to our use, we put the surplus into the treasury of this company so that only one small fraction of it goes to us, and the Secretary of War certifies to the deposit of those funds in the treasury.

Mr. McKenzie. Do you refer, now, to the company that will have a million dollars capital stock?

Mr. Hooker. The company has $10,000,000 of capital and $1,000,000 is paid in and the other $9,000,000 is sold or kept in the treasury, according as the thing may prosper, or as the situation may develop. We do not, at the outset, under-

take to sell the other $9,000,000. It may never be needed. We do, however, offer our services in placing it, if it is needed.

The next thing of interest here is that we complete the present construction of Dam No. 2. On that, you see, we receive one-third of the 10 per cent commission, or 3⅓ per cent.

Mr. QUIN. Which dam is that?

Mr. HOOKER. That is the dam you are working on now. We go right ahead and finish that and receive one-third of the 10 per cent commission. Then we construct the extension of the steam electric plant at Dam No. 2, which our people built some time ago. We add to that another 60,000 kilowatt unit, so as to develop out of the dam the maximum possible firm power. You understand this Dam No. 2 has a very small amount of firm power, what we call "primary" power, and a very large amount of fluctuating power, which it is very difficult to use or sell and it is our hope that may be devoted to the use of the fertilizer plant in such a way as to get very cheap fertilizer.

Mr. WURZBACH. How much firm power do you figure?

Mr. HOOKER. How much do I think it will give?

Mr. WURZBACH. How much firm power do you figure will be furnished by Dam No. 2? You said a very small amount.

Mr. HOOKER. About 75,000. Do not let us get a wrong idea of Muscle Shoals. There is only 75,000 horsepower of the kind I am buying all the time at Niagara Falls, and have been for the last 20 years. There is only 75,000 horsepower when the dam is finished. There is 600,000 horsepower that is wonderful to talk about, but which it is very difficult to sell.

Mr. HULL. Right there, I want to satisfy myself, if I am not right. I think it has been testified here by a most competent authority, and that the records so show, that during the last 50 years the horsepower at Muscle Shoals, the flow, never dropped but once below 100,000, and at that time it only dropped to 89,000. Now, if I am not right, I would like to have you set me right. Of course, the firm power you are speaking of is the lowest point that it reaches.

Mr. HOOKER. I am speaking of the kind of power I am using at Niagara Falls.

Mr. HULL. The firm power is the actual power?

Mr. HOOKER. It is the same kind of power we are buying, running 365 days a year and 24 hours a day for 20 years, without losing 5 minutes.

Mr. HULL. The flow of the river there, if I am right, it has been testified by a competent authority, never but once dropped below 100,000, and then it only dropped to 89,000. Is not that right?

Mr. WURZBACH. That is right.

Mr. HOOKER. I stand on my 75,000. I am sure you will find I am right. But it does not make any difference whether it is 75,000 or 100,000; the point is it is relatively a small amount. There is a very large amount of seasonal power there and, for that reason and in order that the United States will realize as large a return as possible out of it, it is very important that the steam power be saved. Now, it would be a mistake not to retain that. The Alabama Power Co. offered to buy that steam plant from the United States Government, for $4,500,000, which cost $12,000,000. This gentleman (indicating) built it. If you sell that plant to anybody, you weaken your $45,000,000 investment in that Dam No. 2 tremendously. You must not do it. That steam relay is very important to make more and more of this firm power that you can sell at the higher price, you see. For that reason, in order that the income from the dam to the Government may be still further increased, we have arranged to put in at the site of the steam plant No. 2 still more steam power, so that you may relay still more of these units of seasonal power and bring in still more revenue. I think, right on that line, it would be interesting for me to give you this figure.

I assume here 100,000 horsepower, 12 months' power, along the line you are speaking of. Now, there is another 100,000 horsepower that you can get for about 9 months, and if you run your steam plant for a quarter of a year you will make that 12 months of power, and that gives you 200,000 primary horsepower. Then there is another 100,000 horsepower that will run for six months of the year, and if you run your steam plant so as to take care of the other six months of the year you will get 300,000 horsepower, and the value to the Government is out of all proportion to the amount of the investment to be made in this steam relay. So the point I wish to make is that you must not sell the steam plant to anybody, and you must increase it, and thereby you increase the value of Muscle Shoals Dam No. 2 enormously, because this firm power is worth a great deal of money. Seasonal power is worth very little money.

Mr. HULL. I quite agree with you on that proposition.

Mr. HOOKER. Yes.

Mr. HULL. But it is important to us to know if this power has ever dropped as low as 75,000, and I wish you would, for our own information, put in the record the date that power dropped to 75,000. I want to check up on some other testimony.

Mr. HOOKER. You see, to get really down to horsepower you have to have a daily record. The trouble with all these records is they are weekly records, monthly records, and that sort of thing.

Mr. HULL. We are told by experts that it has never dropped below 89,000, the flow of the river. Now, if they are right, you are wrong.

Mr. HOOKER. With all due respect, I know I am right.

Mr. HULL. Then you can put in the date when the flow of the river was at that point.

Mr. HOOKER. No; I mean you can not sell but 75,000 firm power to anybody for a year; that is, I could not go down there and buy it.

Mr. HULL. It might be you could not sell it under some system you have; but firm power is the flow of the river at the lowest point?

Mr. HOOKER. Yes.

Mr. HULL. Driving power—every hydraulic engineer I have ever met tells me that is the fact, and that has been set by every expert we had at 89,000. If it is down below that, we ought to know.

Mr. HOOKER. It is not enough below 89,000 to affect your problem.

Mr. HULL. Fourteen thousand, or a drop from 89,000 to 75,000 is some drop.

Mr. HOOKER. Well, it is not much on 300,000. Please, gentlemen, do not misunderstand me as taking any back water on that 75,000; I stand by that.

Mr. MCSWAIN. You have measured it, and you know?

Mr. HOOKER. No, sir; I have not measured it, but you must remember my people have been down there for years.

Now, it is intended to go on with Dam No. 2 and put in the generating units the Government is now planning to put in. Then it is intended, under the approval of the Secretary of War, to use whatever part of Nitrate Plant No. 2 or Nitrate Plant No. 1 seems the best to use and to put in the fertilizer process which seems best to use, either anything that the Carbide Co. is offering or anything that the Alabama Power Co. is offering, or anything the Casale process offers or anything we control. That is wholly a matter of fertilizer research.

I assure you, gentlemen, that is a very, very hazy proposition, and Mr. Ford does not say exactly what he is going to do, because he does not know. I am perfectly sure my friend, Doctor Cottrell, sitting here in the room, with whom I have been associated for 15 years, and who has some splendid ideas about fertilizer—I am perfectly sure he does not absolutely know what ought to be done about fertilizer there. We know a number of ways and there are much better ways of getting out fertilizer than from Plant No. 2 and the Government, under this contract, through our cooperation, and from our chemical service, would have the best thought that could be found to get it in the quickest way and to get the cheapest fertilizer that could be had. And I might say the figures I gave you as to the Government's return are after $10,000,000 has been deducted for experimentation on fertilizer under our proposal.

Mr. MCKENZIE. You say there is a great deal of haze about the matter of manufacturing fertilizer at this time?

Mr. HOOKER. At Muscle Shoals.

Mr. MCKENZIE. It is in a sort of nebulous condition?

Mr. HOOKER. Under the facilities at Muscle Shoals.

Mr. MCKENZIE. Yes. Now, do you think we will get that haze removed sooner by having the War Department down here work out some plan of manufacturing fertilizer, or by leasing this property to Mr. Ford under a contract in which we require him to produce a certain amount of it annually and limiting the amount of profit? Which of those two courses would hold out the greater hope?

Mr. HOOKER. Of course, Mr. Congressman, I would not be here if I did not believe you would get it quicker through us than you would through either one of the other offers. We are in the chemical industry. I happen to be president of the Manufacturing Chemists Association of the United States and we are interested in this whole industry and know something about it and have spent our lives in it, and Mr. Ford has not, and the Alabama Power Co. has not. I do not mean we have spent our lives on the fertilizer side, but we have spent our lives on the electrochemical side, which is closely hooked into it, and all the processes are allied in that field. I believe we can get you quicker results than anybody else.

We agree to take care, of course, of all power for the dams, locks, lighting, etc., just as anyone has done.

We agree to continue and expand the fertilizer production. And here is something which we have tried to provide that we feel will give something definite about fertilizer. There seems to be some haze about protecting the Government in regard to the power from Muscle Shoals available for fertilizer; because, of course, tying up the power for fertilizer prevents its being sold as firm power. We have provided here that the corporation shall furnish such power as is needed for actual nitrate and fertilizer production at plants Nos. 1 and 2 from time to time out of power then available from sources under lease from the United States and not previously sold and of such character as the Secretary of War may require. Now, that is the way it ought to stand, and it would work no hardship to the country and would allow us to sell as much power as we could, and of the best quality, so as to make as much out of it as we could for the United States. But it is not contemplated that the United States would want to go wholly into the manufacture of fertilizer during the first years of the agreement. And if the United States did not go into the manufacture of fertilizer at first and then started up, you are protected under this clause which we have inserted. To this end the coporation will hold available for the United States, on reasonable notice, up to one-quarter of the developed primary power capacity of the steam plant and nitrate plant No. 2 and from Dam No. 2 and from Dam No. 3 when completed; and, in addition, will hold available, on similar notice, developed secondary power from Dams Nos. 2 and 3 up to 100,000 kilowatts.

One of the other offers provides for 140,000 horsepower under certain contingencies for this purpose. This provides a great deal more than that. We agree to pay $50,000 a year for research work from the completion of Dam No. 2 to be put into a fund for research to achieve quicker results on the fertilizer. The Government puts in as much as it wants to. Then, upon completion of Dam No. 3, we agree to put in $200,000 a year indefinitely. I think there is one offer to put in $1,000,000 over a period of 10 years for fertilizer experimentation. Ours goes considerably further than that, because the $200,000 might reach for 40 years and be $8,000,000 or $10,000,000.

We agree to amortize this Dam No. 2, costing $45,000,000, all except the navigation part. In our figures we amortize all of the expenditures from now on, $15,000,000. We amortize half of the $30,000,000 which is already spent. That leaves $15,000,000 unamortized, and then in connection with the fertilizer operation we agree to amortize the $9,000,000 of that $15,000,000, which is not devoted to navigation. Six million dollars of the $15,000,000 went into navigation purposes. We also then agree to amortize the $17,000,000 of steam plants. The only thing that remains unamortized are the nitrate plants. We amortize all the money spent on Dam No. 3, so that the country at the end would have nothing that was not paid for except nitrate plant 1 and nitrate plant 2, and if the fertilizer operation is ever successful and makes money, all that money goes to the Government, except for the first 10 years 2⅔ per cent of the operation, and after that all but 2 per cent goes to the Government.

Mr. McKenzie. Do you have your figures worked out on your amortization plan, so you can put it in the record?

Mr. Hooker. I can not give it to you, Mr. Chairman now, but I can give it to you later.

Mr. McKenzie. You will send it?

Mr. Hooker. I do not have it in the right form, but it will come out as I have given it to you.

Mr. McKenzie. If you wish to send that over to the committee, the committee will be glad to have it.

Mr. Hooker. How much time could you give us for that?

Mr. McKenzie. I do not know that we need to give you any time. If you send that over we will take it up for consideration.

Mr. Hooker. Will a week or 10 days be all right?

Mr. McKenzie. I should say so, inside of a week, at any rate 10 days. It will have to be taken up in the House, and if we can get it out of the committee it will be plenty of time.

Mr. Hooker. Have I made clear to you, gentlemen, the essentials of this proposal? It is my belief that no one is offering you a solid, sound, binding fertilizer proposition, and I do not think you can get it, and I do not think that you ought to get it, because nobody knows how to do it.

Mr. McKenzie. I will say this, as far as the chairman is concerned, you have perhaps made it clear to my mind that if the Government simply wants to go into this business for making a dollar, and operating its own public power plant, why I think you have perhaps the best proposition that has been submitted, but

we have not been considering this proposition, at least it has not affected me in that way; that we are simply going into the proposition to see how many dollars the United States Government can get out of it. I have not been looking at it from that standpoint, but I think from what you say perhaps it is true that if your plan was adopted, in the long run there would be more dollars, perhaps, go into the Treasury of the United States than either of the other plans submitted.

Mr. HOOKER. Suppose you accept Mr. Ford's offer of $70,000,000. Suppose you take this proposal, and our figures are verified, we will say, by the War Department experts, then the chances are that in the long run you would get $400,000,000 or $300,000,000 this way.

Here is my point: Don't you see the difference between $300,000,000 and $70,000,000 of money coming to the Government that can be put into the distribution of fertilizer? I am not talking about making money for the United States Treasury. Of course, if you ask me honestly, I think it ought to go to the Treasury and not to the farmers, because I understand it ought to belong to all the people; but if you want to help the farmer here is a proposition with which you can do it, and have this fund available, and all this money that will go to Henry Ford will go to the Government and be turned in to decrease the cost of fertilizer, and this proposition ties up your power, the Government's cheap power, which is the heritage of that district, and it ties it up tight to the possibility of making the cheapest fertilizer that can possibly be made, because the Government profits can go to reduce the cost of fertilizer as far as they want to.

Mr. MCKENZIE. In other words, the Government would be in business.

Mr. HOOKER. Mr. Chairman, I am the last one who wants the Government to go in business. I want to tell you that if you were not in the Muscle Shoals project I would not be down here making an offer of the kind we have here. I do not believe in Government ownership. I have thought this question over carefully and this is the conclusion I have come to: You are confronted with a condition not a theory. You are in business, and you can not get out. Nobody has taken you out. They seem to take you out of business, and you are only getting a proportion of the values, but the offer we have here takes you out of business and yet keeps these great values which belong to our children for the country. Under this contract all the profit in fertilizer goes to the Government. The small percentage that goes into our fund in connection with the fertilizer will be 2¾ per cent part of the time and 2 per cent part of the time. All the surplus profit over 8 per cent also goes to the Government.

If there are these processes that we are talking of developing—and we have at our command any process that anyone else has—if these things can succeed and fertilizer can be made cheaply, and if any of these statements made to you that fertilizer can be made at half its present cost ever are true, every single bit of that benefit will redound to the United States Government or to the farmers if the Government chooses to give it to the farmers, and we have no claim on it and no hold, and there is nothing in this contract that gives us the slightest connection with it.

Mr. HULL. You spoke of finishing the dams on the proposed cost-plus arrangement. Would it not be better in any case, whether Henry Ford gets the contract, or the southern power companies, or you, or somebody else, to have the Government go ahead and finish the dam? They have the organization and are going ahead, and within all human probability they will have the dams finished about the 1st o June or the 1st of July of next year, and any change would be detrimental. Is not that true?

Mr. HOOKER. No; not when you are dealing with people like us who have been building dams all of our lives and are engaged in the same kind of business, and build them all the time, and offer to do it for merely a bagatelle.

Mr. HULL. They have their organization there.

Mr. HOOKER. We would not destroy that organization. We would only relieve certain elements at the top.

I think, Mr. Congressman, that we would build it quicker, and we would do it cheaper. I hope there is no military engineer present who can hear my words, because he will not like it. The percentage is so small it does not amount to much, though, anyway. On $15,000,000 it would amount to $375,000.

Mr. HULL. That is not the point, but the point is the work is being done there now and is being done mighty well.

Mr. HOOKER. I have that impression.

Mr. HULL. It may be that we are paying a little more, but I would like to see the Government engineers complete that job, so we would know who was responsible if anything went wrong with it.

Mr. HOOKER. It is a straight case of laying concrete. The Government made all the plans and did all that work. It is the Government's dam.

Now, using a plan such as I have submitted, and which turns over to the Government all of the profits in this thing and leaves very little, especially for 10 years, I think the best thing to do is to let all the work there be done by one organization; let us go on and finish that. However, that is not vital.

Mr. WAINWRIGHT. In the State of New York we take a broad view.

Assuming the Government does finish this dam, do you think it is really necessary in the interests of the Government to turn it over to any licensee? Is there any reason why the Government should furnish the power generated there itself, and not through the medium of any corporation, not taking into account, of course, the distribution?

Mr. HOOKER. I think the Government is always at a disadvantage.

Mr. WAINWRIGHT. I heard what you said about the Government not being in business, and maybe we would not disagree on that, but I am wondering whether this kind of an enterprise is not a very different enterprise from that which we have in mind when we talk about the Government being in business.

Mr. HOOKER. It is, and for that reason I would be willing to be associated with it. It is the least being in business that you can be in business and not be in business, and further, you are in it and can not get out of it, and the only way you can get out of it is to be robbed, unless you do something like this, and I say you gentlemen can not afford to accept $70,000,000 for a thing worth $400,000,000 or $500,000,000.

Mr. WAINWRIGHT. I did not know that you were here, and I was not here when you made your opening remarks, but would it be possible to carry out your plan for the making of fertilizer, and the Government still retain in its own hands the generation of power and the primary delivery of power?

Mr. HOOKER. Our whole proposition is directed at that point. I feel that this committee of Congress has the responsibility of that enterprise down there. When it was first brought to me, gentlemen, they tried to prove it was worth $3,800,000,000. I have got those figures in my bag, every detail is right there Now that is a joke. If you are going to sell something that somebody thinks is worth $3,800,000,000, for $70,000,000, Henry Ford will be thinking about what he is getting. It is worth a very large sum of money, and we are sure that it is worth several hundred millions of dollars, twice as much as the Alabama Power Co. are offering, and they are offering several times as much as Henry Ford. I do think since the country is in it, and since it owns this thing, and since it can not get out except at a loss, it is quite proper for the Government to continue in the kind of a business relation I have indicated here with men in whom I think you would have confidence, at least the business world would, and they are not men that the South would be afraid to trust, because they are not tied up with any kind of a situation there. They are friends with everybody and not too good friends with any, and this proposition is intended to have a group of men of that kind take this enterprise and run it in the interest of the Government, the Government furnishing all the money, as they do in all these offers, although it does not appear on the surface—and in such places as money is offered it is very limited—run it on that basis and give the Government two-thirds of all the returns for 10 years and three-fourths of all the returns for the remaining 40 or 50 years of the lease. That is our proposal, and we put in $1,000,000 just as evidence of good faith. It is to be kept there so that we can not put it in and take it out.

Mr. WAINWRIGHT. Do you mean so far as power is concerned you become the operating agents of the Government?

Mr. HOOKER. So far as power is concerned, we become the operating agents, and it is a proposition I would not make if you were not in it. You are in it and can not get out of it, and you can only get out of it at a great loss, and inasmuch as it is the kind of business that Mr. Wainwright has described, you can afford to turn it over to some responsible people as your agents and let them operate it at something more than a mere salary, because you could not get these men for a salary.

Mr. WAINWRIGHT. My question was whether it was advisable for the Government to turn it over to agents or anybody else. Does the amount of business required in generating the power from the water which flows over the dam, which

the Government constructed, and make delivery of it, does that involve any real business operation in the sense that the Government has not been successful?

Mr. HOOKER. The real operation of primary power is a simple operation.

When you remember in connection with these plants, for the purpose of making fertilizer, that one cost $67,000,000 and another cost $13,000,000, gentlemen, do you realize what has been suggested here? You turn over a plant costing $67,000,000 and another costing $13,000,000 (for one part of which $4,500,000 has already been offered) and $3,500,000 additional through the Madden bill, you would turn this all over to Henry Ford for $5,000,000—why, it is unthinkable. It is unthinkable. I wish Henry Ford were down here. I would like to hear him talk about it around this table.

Mr. MCKENZIE. You are still reasoning from the basis of the dollar.

Mr. HOOKER. Let us go back to fertilizer. We feel kindly toward Ford. I am talking about this in an abstract way. As regards this thing tying into the Government, and as far as the Government in business is concerned, the important thing, as I understand it, that you want to do, is to get cheap fertilizer and plenty of it. Here is a plan by which the same people do the power and fertilizer operation, and we are chemical people; you see, doing the fertilizer operation, under the control of the Government, all this 9 months, 8 months, 7 months, and 6 months' power, which is the cheapest power in the world, and which allows you to get cheap fertilizer, if you can swing it between the power and fertilizer plants as that seasonal power is used, and use your steam plants as a relay for it, you have got a very complicated business proposition. The power is simple, but the other thing is very involved and very difficult, so difficult that nobody who has made you an offer yet knows how to do it. We know we have ways to do it, but we do not know the best way. If you have those two things tied in together, you have got your best chance of getting a large amount of fertilizer, in which you can use these large amounts of seasonal power to the best advantage. That makes it a complicated business.

Mr. JAMES. If we manufacture fertilizer at plant No. 1 or 2, about how many times do you think it will have to be replaced in 100 years?

Mr. HOOKER. How many times would the plant have to be replaced?

Mr. JAMES. Yes, sir.

Mr. HOOKER. Please do not hold me down to exact figures. I will speak in a symbolic way. You have got a $67,000,000 cyanamid plant which will make fertilizer. You have got a plant worth $13,000,000 which will make fertilizer. You have got at Syracuse for $4,500,000 another Haber process plant which is successful, and the one at Muscle Shoals can be made as successful now as that one which cost $4,500,000. We have got at Niagara Falls for $600,000 now a Casale plant which will make ammonia, a higher grade of ammonia.

This art is changing so fast that it is like a book—before you have read it it is out of date—and it is entirely probable that within a very few years there may be developed at Nitro, under the operations of Doctor Cottrell, another plant, and with what we can do there and at Niagara and what is being done through the country, there may be developed a process of making a plant which cost a fraction of $67,000,000 for the manufacture of nitrogen that would enable that whole $67,000,000 plant to be scrapped, and the sooner it can be scrapped the better, because it is a big amount of investment to take care of, but it must not be scrapped now. It is one of the most valuable things in this country, and it must remain until there is something to replace it for use in time of war.

Mr. HULL. You have been down to Muscle Shoals?

Mr. HOOKER. No, I have not been at Muscle Shoals. Both of these gentlemen have been there, my associates.

Mr. HULL. You say that the property outside of the dams is valuable. Is it worth what we invested in it, in plant 2, the steam plant, and plant 1?

Mr. HOOKER. Your $67,000,000, No. 2 plant has incorporated in it a $12,000,000 steam plant. You have just been offered $4,500,000 for that steam plant. I think the major general in charge of ordnance had in his mind the figure of something like $6,000,000 for that plant. Of course it is buying it second hand. I take it it is in first-class condition, is it not, Mr. Wells?

Mr. WELLS. The last time I saw it, it was.

Mr. HOOKER. It is worth between $4,500,000 that is offered and $12,000,000, what it cost. The $12,000,000 includes something that is not strictly a steam plant.

Mr. HULL. You spoke of Ford giving us $70,000,000, and that is the hydro offer.

Mr. HOOKER. I have included in my figures no interest, no compound and no simple interest. All proposals are on the same basis. That is the total amount of money the Government gets out of the Ford proposition in 56 years.

Mr. HULL. I am in doubt as to the amount. I can not get the $70,000,000. I agree with you in buying for $5,000,000, $90,000,000 worth of property. If we give him $12,000,000, he will pay us $5,000,000 for the $90,000,000. I do not see how he gives us $70,000,000. What he gives us on the hydro power is 4 per cent of the cost of Dam 2, less $17,000,000, and that is the actual value which I think it will amount to, as near as I can figure it, less than $30,000,000.

Mr. WELLS. He also insists upon the development of Dam 3.

Mr. HOOKER. Yes; he insists on Dam 3 development.

Mr. HULL. That has not been developed, and the other people expect to develop that. What we have got down there is Dam 2. That will cost us, approximately, according to the estimate——

Mr. HOOKER. I agree with you if we do not develop Dam 3 he is not paying you $70,000,000. It is only because he insists on building Dam 3.

Mr. HULL. Dam 3 is in the distance.

Mr. HOOKER. He insists that you build it.

Mr. HULL. All he gives is about $30,000,000.

Mr. HOOKER. I have not made that figure, but it is nowhere near $70,000,000; I can tell you that.

Mr. MCSWAIN. Who makes this offer, certain individuals or the Hooker Electro-Chemical Co.? Is there any doubt about who makes the offer?

Mr. HOOKER. No; we do not want to be bruited around in the newspapers, that is all. I am willing to tell you. It is myself, Mr. J. G. White, the head of the White Engineering Corporation and the White Management Corporation, who are doing a great many millions of dollars of work for the Government all the time, and Gen. Wallace W. Atterbury, the operating vice president of the Pennsylvania Railroad. Those men are all selected—outside of myself, and I plead guilty to having selected them—with a view to command public confidence, one because he is one of the largest employers of labor in the United States, although another is a large employer also, and because he has had wonderful relations with his labor, the other one because he has done more construction work than anybody else in the United States, and has a very fine, clean reputation which I have never heard attacked, and my own contribution to this thing is a very limited one. It represents the chemical side, and I only know a little bit, but I have a great many friends who know a lot.

Mr. WAINWRIGHT. Mr. Hooker stands very high in the State of New York.

Mr. MCSWAIN. He has told us he can save us several million dollars in the course of 50 years.

Mr. HOOKER. It is your money.

Mr. MCSWAIN. Have you any guaranty that you can do that, or is that just figures? Are you putting up any financial guaranty that if you fail to do it we can collect?

Mr. HOOKER. Nothing but a million dollars as evidence of good faith—nothing intended to be substantial at all.

Mr. HULL. The property is there and does not belong to you.

Mr. HOOKER. Nothing belongs to us. It all belongs to you. That is the whole proposition.

Mr. MCKENZIE. If that is all, we are very much obliged to you, Mr. Hooker, and I am sorry you had to appear under such unfavorable circumstances.

Mr. HOOKER. It was a great pleasure to be here. I am making a different kind of proposal from what you have had.

Mr. MCKENZIE. We will look it over, that is, the committee will look it over and consider it, and, gentlemen, that will conclude the hearing, and the committee will stand adjourned until 10 o'clock to-morrow morning, when we will go into executive session for the purpose of considering these various matters.

(Thereupon the committee adjourned.)

(The offer submitted by Mr. Hooker is as follows:)

A BILL To provide for the manufacture, distribution, and sale of fertilizers, bases of war materials, explosives, and other products; for the construction and operation of Government-owned dams, hydroelectric and steam-electric power and nitrate plants; for water-power conservation; for stream control and navigation; and to authorize the Secretary of War to enter into a contract with a corporation to be known as "The United States Muscle Shoals Power and Nitrates Corporation" or other suitable title organized for the purpose of taking over, operating, and building the Muscle Shoals project at Muscle Shoals, Alabama

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of War is hereby authorized and empowered to lease to a corporation organized or to be organized by act

of Congress under the title "United States Muscle Shoals Power and Nitrates Corporation," or other suitable title, with an authorized capitalization (not less than $1,000,000 of which shall be paid in in cash) and with powers approved by the Secretary of War, all the following described properties, to wit:

All the property, real and personal, including railways, transmission lines, substations, plants, dams ,power houses, contracts for the sale of electrical energy, rights to flow of water, machinery and equipment, and all rights and easements appurtenant thereto or available for use in connection therewith, owned, controlled, used, or now or hereafter available for use by the United States in connection with the Muscle Shoals project, or any extension, development, or operation thereof, and located at Muscle Shoals, Sheffield, Florence, Waco Quarry, or elsewhere, with the right to immediate complete possession and continued quiet enjoyment thereof, but not including any water power developments on the Tennessee River other than Dams No. 2 and No. 3 and their adjacent reservoirs, and to execute any and all proper assignments, contracts, leases, deeds, transfers, conveyances, and other documents appropriate to effectuate such lease and the terms thereof.

Provided, however, That at all times ownership and voting power of not less than 75 per centum of the outstanding shares of each class of stock of the corporation shall be vested in citizens of the United States, free from any trust or fiduciary obligation in favor of any person not a citizen of the United States.

The lease shall contain the following provisions and such others in extension, elaboration, or definition thereof as may be approved by the Secretary of War.

SECTION 1. That the term of the lease shall commence forthwith and cease fifty years after the date of completion of Dam No. 2, or if Dam No. 3 be built within this time then fifty years from the date of its completion.

SEC. 2. That the Board of Directors of the corporation shall appoint and maintain in office an Advisory Committee of three members, one of whom shall be nominated by the Secretary of War and two (one of whom shall be the chairman) by the corporation, which committee shall have advisory powers in all matters connected with the development, expansion, and operation of the leased properties, and the sale of the products thereof; and that the Secretary of War, upon the recommendation of the Advisory Committee, shall make rules and regulations for the control of navigation on the Tennessee River at and above Dam No. 2, as may be necessary to conserve water for power purposes to be used in connection with the leased premises, such control to be exercised through the representative of the Secretary of War on such committee.

SEC. 3. That the corporation shall have access to and may use any facilities created from time to time by the Department of Agriculture for the distribution and sale of fertilizers and compounds and shall have the cooperation of the Department of Agriculture in research work and the manufacture and distribution of its product, including cooperation with Government and State experimental stations.

SEC. 4. That, in so far as the United States may grant such rights, the corporation shall have the right to operate without payment of royalty and to license others to operate in the Muscle Shoals district, with or without royalty, under any patents owned and controlled now or hereafter by the United States or under which the United States is or may be licensed, or permitted to operate, including all patents of Government employees: *Provided,* That if the United States is put to any expense in connection with carrying out the provisions of this section, such expense shall be repaid to the United States by the corporation.

SEC. 5. That the corporation may, with the approval of the Secretary of War, sell or otherwise dispose of any surplus leased land, and may execute all requisite instruments of transfer thereto; and may, at its sole discretion, sell supplies or materials not a part of nor requisite for the completion or operation of any of the principal leased plants, provided that the proceeds of any such sale or disposition of real or personal property shall be paid into the treasury of the corporation and be accounted for by it as surplus to be used for working capital and other authorized purposes of the corporation, excluding the payment of dividends on or in retirement of its common or preferred stock, reporting annually such sales and the amounts received therefrom to the Secretary of War.

SEC. 6. That the corporation shall be reimbursed annually by the United States the amount paid by the corporation on account of each and every tax or assessment levied or imposed against or upon any of the leased properties or the improvements or betterments thereto or any part thereof, or upon the corporation's occupation, use, operation, or ownership thereof, or upon its rights to operate the same, or income or profit therefrom, or upon the right to exercise its franchise as a corporation, or any tax whatsoever, whether such tax or assess-

ment be levied or imposed by the United States, or any State, municipality, or subdivision thereof.

SEC. 7. That the United States shall furnish to the corporation through the Secretary of War all funds required by it both for the completion of the unfinished undertakings and construction of future undertakings, as set forth below in this section, and that thereupon the corporation shall perform such work, all said funds to be payable in advance of the progress of the work under regulations to be approved by the Secretary of War, and all such work to be performed by the corporation at cost, including engineering, purchasing, construction, and traveling expenses, plus a net profit of 10 per centum, which profit shall be a part of the profits to be shared with the United States as in this Bill provided.

(a) Completion of construction of Dam No. 2, with an equipment capable of generating three hundred and sixty thousand kilowatts, together with sufficient substations and transmission line capacity to transform this power from time to time into salable form and deliver it to customers at an adequate return, and to conduct power to the fertilizer plants on the leased property.

(*b*) Completion of construction of the present steam electric plant, located at nitrate plant No. 2, so as to afford sixty thousand kilowatts additional capacity.

(c) Construction of additions, betterments, and improvements requisite to keep all plants on the leased premises abreast of any improvements in the methods and machinery of power production or manufacturing.

(d) Construction and development, when approved by the Secretary of War, and when the land, powers, and other rights necessary for its construction and operation by the corporation are vested in it, of Dam No. 3, and/or Dam or Channel No. 1.

(e) Refitting, equipment, and placing in operation, as approved by the Secretary of War, of nitrate plant No. 2 and/or nitrate plant No. 1 and accessories for the manufacture of fertilizer and explosive bases, or other chemicals, including additional construction and experimental development in connection with synthetic ammonia and other processes—estimated to cost $5,000,000. The decision of the Secretary of War shall be final as to any changes in nitrate plants Nos. 1 and 2 affecting the manufacture of war materials or explosives.

(f) Assembling and placing in operation of the sulphuric acid plant connected with nitrate plants No. 1 or No. 2 and the building of any other plants for the manufacture of fertilizer or otherwise as approved by the Secretary of War.

SEC. 8. That at all times during the period of the lease of Dams No. 2 and No. 3 the corporation will furnish to the United States, free of charge, to be delivered at any point in the lock grounds designated by the proper Government authority, electric power to an amount necessary for the operation and lighting of the locks, but not in excess of three hundred horsepower for Dam No. 2 and two hundred horsepower for Dam No. 3.

SEC. 9. That the corporation shall continue and expand fertilizer production on the leased premises, as approved by the Secretary of War during the term of the lease, provided that the United States shall pay to the corporation in advance as required by it such moneys as shall be necessary for the entire operating expenses of the fertilizer plants, including administration, maintenance, repairs, reconstruction costs necessary to keep abreast of the art, and working capital for all purposes, including raw materials, labor, storage, distribution, and sale; it being at the option of the United States to discontinue operation of such fertilizer plants when conducted at a loss. As a part of the operating cost of the fertilizer plants to be paid by the United States to the corporation, power furnished by the corporation for nitrate and fertilizer production at nitrate plants No. 1 and 2 shall be included at a price at least 10 per centum less than the going rate at Muscle Shoals for the class of power so provided. That the corporation shall furnish such power as is needed for actual nitrate and fertilizer production at plants No. 1 and 2 from time to time out of power then available from sources under lease from the United States and not previously sold and of such character as the Secretary of War may require. To this end the corporation will hold available for the United States, on reasonable notice, up to one-quarter of the developed primary power capacity of the steam plant at nitrate plant No. 2 and from Dam No. 2 and from Dam No. 3 when completed; and, in addition, will hold available, on similar notice, developed secondary power from Dams Nos. 2 and 3 up to one hundred thousand kilowatts.

SEC. 10. That the corporation shall conduct research and betterment work on the general Muscle Shoals project, as approved by the Secretary of War, for which work the United States shall pay to the corporation such moneys as may from time to time be requisite, such funds as furnished to be in addition to funds to be

provided by the United States for research and betterment work on fertilizer, nitrogen fixation, and electrochemical development as in this Bill provided.

SEC. 11. That the corporation shall be allowed as profit on the manufacture of fertilizer an annual amount equal to only 8 per centum of the current sales price of all fertilizers manufactured by the corporation during the year, which profit shall be a part of the profits to be shared with the United States as in this Bill provided. The United States shall be entitled to any additional net profits received by the corporation and derived from the manufacture of fertilizers, after providing for the said 8 per centum profit to the corporation.

SEC. 12. That from the annual net earnings of the corporation derived from the operation of the power plants alone, and ascertained after making proper allowance for all administrative, operating, fixed, and maintenance charges connected with steam and water power production, including reasonable reserves, there shall be deducted an 8 per centum dividend on the corporation's preferred stock, outstanding from time to time; and a sum not to exceed $200,000 yearly, if and when the corporation shall be obligated to provide the same as set forth in section 15 of this Bill. Out of the then remaining net earnings the corporation shall provide for payments into a sinking fund, on a basis adequate with interest compounded at 4 per centum annually, to amortize within fifty years from the completion of Dam No. 2, all moneys expended by the United States through the corporation under the terms of the lease upon hydroelectric and steam-electric power plant, transmission line, and substation construction (excluding from such expenditures any part of such moneys expended for navigation purposes and for extraordinary replacements or betterments to the power installations to keep abreast of the art), and adequate to amortize on the same basis one-half of the amount expended by the United States prior to the signing of this lease, in the construction and power development of Dam No. 2, said one-half not to exceed $15,000,000. That the corporation shall further be authorized to provide a fund from such remaining annual net earnings adequate to retire the outstanding preferred stock of the corporation prior to the termination of the lease.

That thereafter, out of such then remaining net earnings, in each and every year within the life of the lease, if and when the power sales from the power plants shall equal or exceed one hundred and fifty thousand kilowatts primary power and in the same year fertilizer sales shall aggregate an amount requiring thirty thousand tons of nitrogen or over from the nitrate plants, the corporation shall pay into a further sinking fund a sum which, if paid continuously each year after the first year for a period of forty years, would amortize with interest compounded at 4 per centum annually, the remaining original expenditure on Dam No. 2 and on the steam power plant located at nitrate plant No. 2 (excluding any part of such moneys expended for navigation purposes), not to exceed $21,000,000.

SEC. 13. That after providing for the funds designated in sections 11 and 12, the corporation shall divide all remaining net earnings arising from any source whatever during the term of the lease with the United States; said division to be accomplished only by paying to the United States, coincidentally with any payment to its common stockholders a sum double the amount of such payment to stockholders if such earnings accrued during the first ten years of the lease, and a sum three times the amount of such payment if they accrued thereafter. That upon the termination of the lease or earlier surrender of possession of the leased premises the United States shall pay to the corporation, (a) an amount equal to the original cost less depreciation, or the then appraised value, whichever shall be the larger, of all buildings, fixtures, additions, repairs, improvements, betterments, machinery, and supplies which the corporation has added to or placed upon the leased premises and paid for out of earnings, surplus, or capital which has been retired, after deducting from such cost or appraised value two-thirds thereof if paid for by the corporation during the first ten years of the lease and three-quarters if paid for after the said first ten years; and (b) an amount equal to such cost or appraised value, whichever shall be the larger, of all buildings, fixtures, additions, repairs, improvements, betterments, machinery, and supplies which the corporation has added to or placed upon the leased premises and paid for out of capital which has not been retired.

SEC. 14. That in order to preserve the steam, water power, and electric installations of the United States intact to the end of the lease, and keep abreast of the art, the corporation shall set up an extraordinary replacement and betterment reserve fund, and payments shall be made into this fund from the share of the United States in the earnings of the corporation, the amount of said payments to be fixed by the Advisory Committee; and that such sums shall be used

from this fund as the interest of the United States require in keeping intact and abreast of the art, the steam, water power, and electric installations on leased premises; the balance of this fund to be paid by the corporation to the United States upon the termination to the lease.

SEC. 15. That, after the completion of Dam No. 2 and the reasonable sale of power therefrom, the corporation shall provide out of net earnings from the sale of power alone as hereinabove defined, a fund not to exceed $50,000 yearly for research and betterment work on fertilizer, nitrogen fixation, and electrochemical development before any division of net profits with the United States, and the United States shall then furnish a sum or sums of equal amount with the corporation for this purpose. Upon the completion of Dam No. 3 and the reasonable sale of power therefrom such yearly sums to be provided by the corporation and the United States shall be increased up to a total of $200,000 each.

SEC. 16. That all remaining profits distributed to the United States as in this Bill provided shall be paid into a rotary fund which shall be controlled by the Secretary of War and from this rotary fund the Secretary of War may, in his discretion, make expenditures for the general purposes of the Muscle Shoals enterprise, as in the lease authorized, or said fund may be otherwise disposed of as may be hereafter provided by law.

SEC. 17. That, whenever in the national defense, the United States shall require all or any part of the operating facilities at nitrate plants Nos. 1 and 2 for the production of material necessary for the manufacture of explosives or other war materials, then the United States shall have the immediate right upon five days notice to the corporation to take over and operate the same, and the corporation will supply the United States with electric power necessary for such operations, together with the use of all patented processes which the United States may need which the corporation owns or has the right to use. When required for national defense any of the corporation's personnel and operating organization necessary for operating any part of nitrate plants Nos. 1 and 2 in the manufacture of materials for explosives or other war materials shall be at the disposal of the United States. For the facilities and services aforesaid the United States shall protect the corporation from losses occasioned by such use and shall return the said property in as good condition as when received and reasonably compensate the corporation for the use thereof.

SEC. 18. The corporation shall operate the said power house and equipment and any steam-power plants now forming part of the Muscle Shoals properties herein described or which may hereafter be constructed in connection therewith, so as to produce the fullest practicable output of usable or salable electric energy, and shall either itself transmit, distribute, and sell all surplus energy not used by it in its operation, or enter into contracts for such transmission. distribution, and sale. Such transmission, distribution, and sale and contracts therefor shall be subject to the regulation and control of the Federal Power Commission, within the limits of its jurisdiction as provided by the Federal water power act.

SEC. 19. That, upon the termination of the lease, should the United States elect not to operate said power plants and other properties or any of them, but determine to lease or dispose of the same the corporation shall have the preferred right to negotiate with the United States for such lease or purchase, and upon such terms as may then be prescribed by Congress.

SEC. 20. All laws and parts of laws in conflict herewith are hereby repealed.

APPENDIX.

WASHINGTON, D. C., *February 2, 1924.*

Hon. JULIUS KAHN,
Chairman Military Affairs.

MY DEAR MR. KAHN: I will attempt to direct you attention to some of the peculiar phases of the Muscle Shoals problem. I know from our joint citizenship in the same great State for half a century that you will generously credit my efforts with sincerity what they lack in merit. In order to avoid controversy, I am taking the statements as I find them in your committee records.

TWO PENDING OFFERS.

Your committee is considering two offers for the power and nitrate plant at Muscle Shoals, now under construction by the Government and by law dedicated to the sacred purpose of home protection in times of war and agricultural prosperity in times of peace.

Mr. Ford, the head of a great and rich automobile trust, in behalf of a corporation to be formed by him, is one contender, and an association of power companies, who so far have maintained a monopoly of the power supply for the great Southeast, is the other.

COST OF POWER AND ITS MARKET VALUE.

Mr. Ford in the offer for his corporation requires the completed plants at Dams Nos. 2 and 3 to be equipped to generate 850,000 horsepower. It will not be possible to operate the entire installation continuously on primary power. With the steam plant at Dam No. 2 and the one proposed on the Warrior River, an output of 300,000 horsepower primary power could be maintained, together with a large production of cheaper secondary or intermittent power. The southern power companies state in the record that the cost of production of primary power at Muscle Shoals will be less than 3 mills per horsepower hour. If 300,000 horsepower be used continuously it will in a year of 8,760 hours produce 2,628,000,000 horsepower hours per annum, which would be equal to 600,000 horsepower for half that time.

Two billion six hundred and twenty-eight million horsepower-hours, at 3 mills per hour would be $7,884,000 per annum as the production cost. The same utility corporations told you they were selling power in large units for a little more than 1 cent per kilowatt hour, or 7.46 mills per horsepower hour. Two billion six hundred and twenty-eight million horsepower hours, if sold at that rate, would be $19,604,880, as the minimum price that power is now selling under regulations of the State public utility commission and the Federal Power Commission. This leaves a net revenue of $11,720,880 for the power at the plant, and a large amount of secondary power to be accounted for, which can largely be sold by the companies at the usual rates. This shows a value of the Muscle Shoals plant to a customer or distributor of power of about $1,000,000 per month.

COST OF NITRATE PRODUCTION.

It has also been shown that 6 cents may be the minimum cost of fixing a pound of atmospheric nitrogen, either by private plants or the fixed nitrogen research laboratory of the United States Agricultural Department. This would be $120 per ton, 50,000 tons would be $6,000,000, and if 5 per cent be added for profit it would be $6,300,000. Now if 300,000 horsepower be sold at the market rate and the revenue used to produce fixed nitrogen, 100,000 tons of atmospheric nitrogen could be made and sold for $10 per ton. If 150,000 tons were made annually by a fixed nitrogen plant of the Department of Agriculture, it could be sold for $50 per ton or less than half the cost of production under either offer submitted. It is certain that under the offer of Mr. Ford or the power companies, the farmers get nothing but what they will pay for at regular rates. And power producers get about $1,000,000 per month net.

THE PROMISED INDUSTRIES AT MUSCLE SHOALS.

I have had some experience in laying out towns in our State. One of the principal arguments of the town-lot promoters is, "they will establish permanent industries." This has been urged by Mr. Ford and his friends. I have known of many kinds of industries used to advertise town sites, from a rock quarry to a movie-picture plant, but never before heard of a powder mill being the chief attraction. Under the national defense act plant No. 2 must be kept in condition to quickly operate as a large Government powder factory. If the land immediately surrounding it is sold by the Government, and used for homes and factories, it would be impossible for the plant to produce powder until the property within the danger zone be purchased by the Government. This would require so much time and expense that the powder plant would almost be useless as a war-time necessity. People living within the danger zone could not get insurance on their lives or property. The Government now owns the land within the danger limit and must hold it, or abandon power production at Muscle Shoals. It would be the

Nation's disgrace to turn this war and peace time necessity over to a private corporation in direct violation of the provisions of the National Defense Act.

Mr. Ford and his son may not realize the awful risk incident to a large munitions plant, as they may not understand how powder is made. They may have forgotten how it looks, and I am sure they do not know how it smells.

TRANSPORTATION RIGHT OF WAY.

Under the Ford offer as per his telegram to you, he now expects the Government to purchase and give him a transportation right of way, about 100 miles in length. This, in plain English, means a railroad subsidy. What has Mr. Ford done that he should claim such a bonus from the American people? Since last session he has changed his politics, and materially increased his demand. It looks like he is presuming a good deal, on a very short acquaintance.

THE MAINTENANCE OF DAM NO. 2.

This is a serious matter, Mr. Kahn, one that has not been given the attention it deserves. Neither Mr. Ford nor the power companies, who are willing to take an unearned hand-out from the Government of a million or more per month, offer to play the game fair as to the expense and responsibility for this great structure. I do not know of a dam as high as the one at Muscle Shoals, and working under as heavy an overfall load, that the maintenance expense has not been more than the replacement cost in 25 years of service. I will explain this fully to your committee on request. Mr. Ford offers $35,000 per year for this item. The Federal Power Commission tell you it is about ten times this amount. Under no conditions does either offer before you undertake the care and maintenance of the structure, or liability of failure. The record of the Hale Bar dam, as told you by the Secretary of War, is not encouraging for this one. Should the dam show defects when put under heavy static and operating load, who will be prepared to promptly meet the emergency? You may recall the incident of the break in the levees at Imperial Valley. The Government could not command the money or equipment at the time of the failure to stop the break, when it could have easily been checked. After an unsuccessful effort that failed for the lack of equipment and funds, and when the existence of a large agricultural district was imperiled, the Southern Pacific Railroad closed the gap at a cost of a million dollars. If either offer now before your committee be accepted, and a failure should become immient, who could be expected to collect an adequate equipment and finance the immediate repairs? This should be met by a provision in the offer for the lessee to maintain a rigid inspection of the dam and keep a sufficient cash reserve to meet any emergency that might be expected.

RESPONSIBILITY OF BIDDERS.

Your committee has been careful to have the prospective corporations sufficiently capitalized to carry out the contract. It is my observation that well-capitalized corporations are usually the ones that do not carry out obligations, which they do not care to meet. It may take a generation to end a legal controversy if a stubborn resistance is made. In the national bank law it has been found best to require a bond deposit to meet the liabilities assumed by the Government. In a contract involving the care and maintenance of a plant required by public safety in war, and by the people in peace, the rights of the Government should be safeguarded by a deposit sufficient to reemburse any probable loss, "a bird in the hand is worth two in the bush" in an emergency.

GOVERNMENT IN BUSINESS.

The proposals now before the committee compel the Government to go into the business of maintaining and building Dam No. 2 and locks, also constructing the power stations and other heavy work. It will be the business of the Government to pay the costs, and assume the risk of construction and operation, and the business of the corporations to collect the revenues. It will be, in the future as it has been in the past, an outgo for the Government and a big income for the corporations. The Gorgas power plant and transmission lines were built by the power people for about $5,000,000 of Government money and used for a long time by the builders, which was equal to half a million dollars more, then purchased by the operating company for a discount of more than $1,000,000. The plant had been worn some, but it was worn in the production of power for the power companies, and the Government stood the loss.

SUBSIDY LEGISLATION.

Mr. Kahn, as your friend, I feel as if it is my privilege to call your attention to the history of Government subsidies and the selling and leasing of valuable Government property to private interests. Commencing with the subsidy of the Chesapeake & Ohio Canal, a hundred years ago, when it seemed to Congress that in order to establish transportation between the sections of our country divided by the Allegheny Mountains the canal was a public necessity, as there was a growing sentiment of secession on the western side of the mountains in favor of a separate government on the tributaries of the Mississippi, which was then their only means of transportation, but neither the Congress nor the administration was sustained by the voters. The Union Pacific Railroad Aid, which the succeeding election eliminated all but two of the Congressmen voting for it, is in line with the Teapot Dome lease now agitating the country. In the many efforts of Congress to aid various business organizations, there seems to be only one exception to the rule, and that was the telegraph line built between Washington and Baltimore; that has always been approved by public sentiment.

A grant of more than a million dollars per month to corporations on a promise to manufacture nitrates at a profit by Government developed methods is, to say the least, unusual.

The South now being handicapped by the ravages of the bool weevil should entitle it to immediate relief. If the offer were to use a part of the immense profits of the power plant to reduce the cost of nitrates and increase the production to an adequate supply, it would have more merit. And if the power was to be distributed at a fair cost by the lessees, it would look more reasonable. But one offer seems to contemplate the use of the power by the lessee. The other is a combination of power companies who will divide the power up and pass it from one to another in such a way that the utilities commissions can not control the price until it reaches the consumers. Then it will have passed through so many hands, and be loaded with so many profits, that the consumer would not get the benefit of the low cost of production.

This gigantic combination now seeking the control of the munitions and fertilizer production of our country are so combined as to conceal the foreign ownership, and to throw dust in the eyes of the public utility commissions, and if possible mislead Congress.

A portion of the Ford billion-dollar fortune is now invested in the coal fields of the South. Should this great resource be developed by low temperature coke ovens, which his corporation is now using and developing, there is no reason why the Ford corporation could not get the supply of fixed nitrogen promised in his offer from the by-products of the ovens. This would give the corporation the most valuable power plant in the Southeast as a clear subsidy. In either event the corporations get the cream, the people the skim milk.

Respectfully,

J. H. Levering,
154 East Capitol Street, Washington, D. C.

Birmingham, Ala., *January 31, 1924.*

Mr. McKenzie,
Military Committee, House of Representatives,
Washington, D. C.:

R. I. Ingalls, a large stockholder and closely identified with Alabama Power Co., does not represent sentiment in this district, which is overwhelmingly for the Ford offer. Alabama Power Co. wants possession of Muscle Shoals in order to perpetuate the monopoly they now have of water power in Alabama.

E. C. Crawford.

Chattanooga, Tenn., *January 31, 1924.*

Hon. Julius Kahn,
Chairman Military Affairs Committee, Washington, D. C.:

The board of directors of the chamber of commerce unanimously passed the following resolution at regular meeting to-day:

Whereas we have had brought to our attention proposals filed with Congress by a group of southern power companies relative to development of electric power and manufacture of fertilizer at Muscle Shoals, it seems to us that there is sufficient merit in these proposals to warrant their careful consideration by

Congress before any disposition is made of Government property at Muscle Shoals: Therefore be it

Resolved, That it is the sense of this meeting that careful consideration be given by Congress to these proposals; and be it further

Resolved, That the president and secretary of this organization be authorized to advise our Representatives in Congress to this effect.

MARK K. WILSON, *President.*

MOUNTPLEASANT, TENN., *January 30, 1924.*

Honorable KAHN,
Chairman House Military Affairs Committee, Washington, D. C.

Representing the great phosphate industry of Tennessee, of which Mountpleasant is the center, we urgently request the acceptance of Henry Ford's offer for Muscle Shoals. Besides the production of cheap nitrate for fertilizer we wish to call your attention to the fact that to secure cheap commercial fertilizer it is necessary to reduce the cost of acid phosphate with scientific investigation and the perfection of electrical process in the treatment of phosphate rock. Phosphoric acid can be produced much more cheaply, in addition a great saving can be made in low-grade rock now going to waste in the present method of treatment and thousands of acres of low-grade rock now undeveloped in the Tennessee field can be brought into use, thereby assuring a supply of commercial phosphate for hundreds of years. We believe Ford's offer is the best and only chance to secure this investigation and the development of cheap phosphoric acid which is just as important to cheapen commercial fertilizer as cheap nitrate.

MOUNTPLEASANT COMMERCIAL CLUB.

SELMA, ALA., *January 30, 1924.*

CHAIRMAN OF MILITARY AFFAIRS COMMITTEE
OF THE HOUSE OF REPRESENTATIVES,
Washington, D. C.

Directors of Selma Chamber of Commerce have not unanimously declared against Ford offer, as reported in the Age Herald, as statement by H. H. Frazier before committee. No action has been taken by chamber.

H. C. ARMSTRONG, *A Director.*

TUSCALOOSA, ALA., *January 30, 1924.*

CHAIRMAN MUSCLE SHOALS COMMITTEE,
House of Representatives, Washington, D. C.

The only people in Alabama to-day who are against the Ford bid for Muscle Shoals are the ones interested in Alabama Power Co.

W. F. HOWELL.

MONTGOMERY, ALA., *February 22, 1922.*

Hon. JOHN R. TYSON,
House of Representatives, Washington, D. C.

Executive Committee Alabama Press Association in session to-day most heartily indorse Ford offer Muscle Shoals and condemns as inimical to best interests of America offer of Alabama Power Co.

EXECUTIVE COMMITTEE ALABAMA PRESS ASSOCIATION,
F. W. STANLEY. *Secretary.*

MONTGOMERY, ALA., *January 29, 1924.*

Hon. JULIUS KAHN,
Chairman House Committee on Military Affairs, Washington, D. C.:

The Southeastern States are ambitious to develop industrially, and with their valuable water power available this can be done successfully if the people of this section are given the privilege of participating in the results of hydroelectric development. With respect to the development of Muscle Shoals, we believe

that the best interests of the country demand that whatever is done with Muscle Shoals be done with the view of a general distribution of its power rather than localizing its use for private interests. The greatest need of the farmer to-day is a local market for the products of his farm, and we believe that a wide distribution of the power to be generated at Muscle Shoals would result in the establishment of industrial plants of all kinds throughout the Southeastern States, thereby affording such markets. One of the most vital features of this project and one that deserves careful consideration is the production of fertilizers for the benefit of the farming interests of this country, and we earnestly desire to see that ample provision is made in the Muscle Shoals development to warrant this feature being properly cared for. No offer should be considered that does not absolutely guarantee that one or more of the Government plants should be operated for the manufacture of nitrates and other fertilizer materials so necessary for the agricultural development of our Nation. Therefore we urge upon Congress not to turn this property over to any corporation or individual that does not agree to use this enormous power for the benefit of the entire southeastern section and also to insure the manufacture of fertilizer and nitrates on the most economic basis and in the greatest possible quantities. The Chamber of Commerce of Montgomery, through its board of directors, realizing the industrial possibilities of not only Alabama but of the entire Southeastern States and the agricultural requirements of the Nation, trusts that whatever disposition is made of Muscle Shoals the benefits to the entire people will be seriously considered.

THE CHAMBER OF COMMERCE OF MONTGOMERY,
W. F. BLACK, *General Secretary.*

MONTGOMERY, ALA., *February 16, 1922.*

Judge JOHN R. TYSON,
Washington, D. C.

Know you are doing all in your power for Ford proposition. Alabama Power Co.'s entry into field of opposition by submission of bid causing much speculation and comment. Special meeting our board this evening. Telegram was sent Representative Kahn urging that no further power be granted power company this State, as they now have practical monopoly on power rights except Muscle Shoals. If anything we should do in addition, please advise us.

CHAMBER OF COMMERCE,
W. F. BLACK, *Secretary.*

STONEWALL, MISS., *January 29, 1924.*

Hon. JULIUS KAHN,
Chairman House Committee Military Affairs, Washington, D. C.

Understand your committee is holding hearings on Muscle Shoals situation. We trust you will take into consideration that the people of this section of Mississippi expect that a portion of the power developed there will be available for us. The future prosperity of our State depends largely upon an ample supply of power at reasonable rates. It is a national asset, and as such its distribution knows no State line.

We are opposed to the policy of confirming its utilization to the benefit of only Sheffield and Florence, and it should not be given to one man for his personal benefit at the expense of the country. It is impossible to conceive how such a policy can even be considered.

STONEWALL COTTON MILLS,
A. C. FRANK, *Treasurer.*

CITY OF MOBILE,
BOARD OF COMMISSIONERS,
January 28, 1924.

Hon. JULIUS KAHN,
Chairman, House Military Affairs Committee,
Washington, D. C.

DEAR SIR: Referring to my appearance before your committee on Saturday, January 26:

On September 29, 1923, actuated alone by patriotic impulses and a bounden duty, and without suggestion either direct or indirect from any of the bidders

for Muscle Shoals, I addressed a letter to the President which contained the substance of my statement before your committee.

The Manufacturers' Record of January 17, 1924, had several illuminating articles upon the subject of Muscle Shoals and the pending bids for its control, which renewed my interest in a wise and just settlement of this most important matter and was the moving cause for my appearance before you.

As I have been strongly attacked in certain antagonistic local papers for the position I have taken upon this subject, I crave your permission to make the following slight addition to what I said on January 26 in further explanation of the mental processes by which I reached these conclusions.

It is a well-recognized maxim of mathematics that things equal to the same thing are equal to each other. Now, as electricity, coal, and oil all produce light, heat, and power, they are by this rule and for many purposes interchangeable terms. As electricity is an unsubstantial and mysterious quantity, can we not, therefore, for the purposes of argument and to get this proposition in a little more concrete form, reasonably assume that you have before you bids for the purchase or control of the equivalent of an inexhaustible coal mine or oil field which has cost the Government $107,000,000?

One of these bids is from the richest man in the world, and his offer, in the published words of Congressman Hull, a member of your committee, is to "pay only $1,500,000 for the entire Muscle Shoals plant, which cost originally $107,000,000." The use to which he will put this great power if he secures control of it has been clearly stated by his representative, Mr. W. B. Mayo, who said in reply to an inquiry addressed to him by you, that with the exception of the small equivalent of coal or oil, which he is to apply to the production of nitrates, that this entire power will be used by Mr. Ford for his individual purposes.

You have another bid under consideration, in regard to which Congressman Hull says "Not only does the proposed offer provide for a payment to the Government of approximately $100,000,000 during the 50-year period of the lease as provided under the Federal water power act, but the interest of the farmer in the potentialities of cheap fertilizer production at Muscle Shoals is thoroughly protected by the reservation of a large block of power provided under the plan for such arrangement as Congress may desire to make for manufacture of fertilizer in connection with the nitrate plants." Of much greater importance than the difference in amount which each of these bidders offer for Muscle Shoals is the purposes to which the power in excess of the requirements for the nitrate plants in each instance is to be applied.

In the rich man's bid this surplus is to be used by himself.

In the bid of the Associated Power Co. this overplus is to be sold to all the people at a price to be fixed by law.

The power now going to waste at Muscle Shoals is a gift from heaven, and I am not willing personally, nor are many of the people I represent willing, to be barred perpetually from participating in this the greatest potential natural power in the State of Alabama.

I therefore plead the cause of the bid which will permit the overplus of power from Muscle Shoals in excess of the requirements of the nitrate plants to be sold at a price to be fixed by law to the people of Mobile, to the people of Alabama, and to all of the people within the reach of the wires which will radiate from this point.

Very respectfully,

R. V. TAYLOR, *Mayor.*

P. S.—As your hearings close Wednesday, I am sending a copy of this letter to my friend, Congressman Lister Hill, a member of your committee, with a request that he ask your permission to read same to the committee, without, of course, in any way involving him in the position I have taken.—R. V. T.

LIONS CLUB,
Mobile, Ala., January 29, 1924.

The HOUSE MILITARY COMMITTEE,
Washington, D. C.

KIND SIRS AND GENTLEMEN: A very few days ago one of our citizens appeared before your body and expressed his views on the Muscle Shoals proposition. At our weekly luncheon held to-day this matter was brought up for discussion and a resolution was presented to our Resolutions Committee and adopted by them.

We are herewith inclosing to you a copy of the resolution presented and passed at this luncheon to-day and we trust that in this resolution we have expressed our serious intentions as to how we feel in a matter of so vital importance to Alabama and the Southland.

Assuring you once again that we are heartily in favor of Mr. Ford being the man among men to take over this colossal enterprise, we are,

Cordially yours,

RESOLUTIONS COMMITTEE, LIONS CLUB OF MOBILE,
ROBERT L. MARSHALL, *Secretary.*

LIONS CLUB,
Mobile, Ala., January 29, 1924.

Believing the development of Muscle Shoals means the development of our State and of our city; and

Believing that in the hands of Henry Ford, who has demonstrated that he is not only a manufacturer of preeminent success and ability but as well a man who seeks to inculcate in his fellow men a desire for things better and cleaner, who has demonstrated to labor that he is their friend and to capital that he knows how to make his own capital his servant rather than his master, that the development will to a larger extent and greater degree of usefulness serve the greatest good to the greatest number of our people of the State of Alabama and our great Southland, therefore the Lions Club of Mobile would go on record as favoring the sale of this property to Mr. Ford rather than to any other or any others who may at this time be bidding for same.

LIONS CLUB OF MOBILE,
By RESOLUTIONS COMMITTEE.

AMERICAN NITROGEN PRODUCTS CO.,
Seattle, February 1, 1924.

Hon. JULIUS KAHN,
Chairman Committee on Military Affairs,
House of Representatives, Washington, D. C.

DEAR SIR: 1. With further reference to our letter of December 15, 1923, suggesting governmental assistance to the air nitrogen industry in general, we will state that, in so far as our company is concerned, we will be prepared under any reasonable form of governmental financial assistance to go as far as Mr. Ford with respect to regulation and distribution of fertilizer production and limitation as to profits derived therefrom.

2. The soundness of our plan for the establishment and encouragement of several air nitrogen plants and processes judiciously distributed throughout the United States, fostered by the Government during the period of infancy and growth, must be admitted when one remembers that Germany, which can be stowed away inside of Texas—with room to spare—with her short-haul freighting, sustains and successfully operates several air nitrate plants, at least two of which, viz, Merseburg and Oppau, exceed in capacity by several times the proposed production of nitrogen at Muscle Shoals under the Ford plan. Merseburg's annual capacity of fixed nitrogen is 220,000 tons, Oppau's is 110,000 tons, and that of Germany as a whole is 400,000 tons, as compared with the proposed guaranteed production by Mr. Ford at Muscle Shoals of only 40,000 tons, or approximately one-fifth of this country's present demand for nitrogen in the form of fertilizer alone. As a result, Germany is to-day practically self-sufficient as to her nitrogen needs and is importing scarcely at all. She is, in fact, preparing to export. Norway is in the same enviable position, and other countries are trailing close behind.

3. Without deprecating, in the least, the wonderful possibilities at Muscle Shoals and its strategic location, we, in view of the above, say to the Government, to agriculture, and the public: If we are to have an air-nitrogen industry in this country, let it be one that will challenge the world; one dependent not upon only one plant and process but several plants so located and several processes so chosen as to most efficiently and cheaply produce nitrogen in its various forms for the benefit of the whole country rather than one particular section. Thus, from the standpoint of the farmers' interests generally, there is a limit to the distribution of benefits accruing from the production of fertilizer at Muscle Shoals or any other one plant in this vast country, which limitation is measured in terms of a few hundred miles because of freight rates, no matter how concentrated the product. This limitation is overcome by our plan; the processes, plants, and in-

dustry will be compelled to face and pass the test of the "survival of the fittest," and the maximum of efficiency and public benefits will surely be ultimately attained. Given one plant, such as Muscle Shoals, with its huge potential power, operating under governmental subsidy, in some form, the country might face a domestic nitrogen monopoly, which, even though not abused—and we are not inferring it will be under Mr. Ford's plan—may become a monopoly just the same. Our proposed governmental policy of general air-nitrogen encouragement will be broad and will include Muscle Shoals; it will serve to quickly establish the industry now 10 to 20 years behind other countries; it will stimulate, rather than retard, competition, advance the art, and reduce costs; it will tend to prevent monopoly, benefit the whole country, and, because of all this, be in the public interest, and appeal to the entire Nation.

4. We sincerely hope that something can and will be done by Congress along the lines proposed by us, either through a clause in the Muscle Shoals bill, in the proposed farmers' relief bill, or by means of a separate bill. We certainly should highly appreciate your indorsement and assistance to this end.

Very truly yours,

AMERICAN NITROGEN PRODUCTS CO.,
By C. F. GRAFF,
President and General Manager.

MUSCLE SHOALS PROPOSITIONS

HEARINGS IN EXECUTIVE SESSION

BEFORE THE

COMMITTEE ON MILITARY AFFAIRS

HOUSE OF REPRESENTATIVES

SIXTY-SEVENTH CONGRESS
SECOND SESSION

MONDAY, APRIL 10, 1922, TO
SATURDAY, JUNE 3, 1922

STATEMENTS OF

Mr. Wm. B. Mayo, Chief Engineer Ford Motor Co.
Mr. J. W. Worthington, Representing Mr. Henry Ford
Col. J. W. Barden, Corps of Engineers, U. S. A.
Mr. Hugh L. Cooper, New York City
Mr. Chase H. Lord, Chicago, Ill.

WASHINGTON
GOVERNMENT PRINTING OFFICE
34014 1924

COMMITTEE ON MILITARY AFFAIRS.

House of Representatives.

SIXTY-SEVENTH CONGRESS.

JULIUS KAHN, California, *Chairman.*

JOHN C. McKENZIE, Illinois.
FRANK L. GREENE, Vermont.
JOHN M. MORIN, Pennsylvania.
HARRY E. HULL, Iowa.
W. FRANK JAMES, Michigan.
CHARLES C. KEARNS, Ohio.
JOHN F. MILLER, Washington.
RICHARD WAYNE PARKER, New Jersey.
FRANK CROWTHER, New York.
HARRY C. RANSLEY, Pennsylvania.
JOHN PHILIP HILL, Maryland.
HARRY M. WURZBACH, Texas.
LOUIS A. FROTHINGHAM, Massachusetts.
THOMAS S. CRAGO, Pennsylvania.

WILLIAM J. FIELDS, Kentucky.
PERCY E. QUIN, Mississippi.
HUBERT F. FISHER, Tennessee.
WILLIAM C. WRIGHT, Georgia.
PHILIP H. STOLL, South Carolina.
DANIEL E. GARRETT, Texas.

Howard F. Sedgwick, *Clerk.*

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MUSCLE SHOALS PROPOSITIONS.

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Monday, April 10, 1922.

The committee this day met, Hon. Julius Kahn (chairman) presiding.

The CHAIRMAN. The committee has decided to give General Steiner five minutes to reply to a statement published in some newspapers in regard to an offer alleged to have been made by him to a representative of the Alabama Farm Bureau Federation in connection with the Muscle Shoals proposition.

STATEMENT OF HON. S. HUBERT DENT, ATTORNEY FOR THE ALABAMA POWER CO.

Mr. DENT. Mr. Chairman, General Steiner is a good lawyer, and I am sure if anybody can make a satisfactory statement on that matter in five minutes he can do it, and not unnecessarily waste the time of the committee in discussing this trifling matter. Yet, at the same time, Mr. Chairman, we think the insinuation is such he ought to have an opportunity to deny whatever insinuation there may be contained in the statement.

I may say, if the chairman will permit, General Steiner is one of the leading lawyers and members of the bar of our State and head of one of the biggest firms of lawyers in the State. He organized a regiment of cavalry in our State prior to the war, went to the Mexican border, became a brigadier general in the Army and went to France.

STATEMENT OF BRIG. GEN. R. E. STEINER.

General STEINER. Mr. Chairman, of course, this matter is of such extreme moment to my family, my friends, and me because of that infamous word "bribe" printed in the papers, and but for that I would not have paid it any attention. I have denounced it, and did so in the papers on Friday, as soon as it came out, as a lie out of the whole cloth. I made them no proposition; I made them merely a suggestion, and the suggestion that was made publicly and printed in the Montgomery Advertiser, a leading paper of Alabama, was this namely: As I read the account—I did not know anything about the details of it—the Alabama Power Co. had made an offer of $5,000,000; that $2,500,000 of that was a surplus over and above the cost of the building of the locks; the Alabama Power Co. had agreed to give 100,000 horsepower, and that it had not bid for the nitrate plant. So, it seemed to me that if the farmers wanted nitrates they should come to you, not to me, or not through me, and ask you to let them profit by any proposition that was made. I said to them, "Do not ally yourselves with the Alabama Power Co., or with Mr. Ford, or with anybody else," That was my statement, so help me God, and any statement to the contrary is infamously false.

As soon as this announcement was made, I immediately sent to Mr. Bishop, who was supposed to be responsible for this statement, and the conference I had was with Mr. Rittenour and other gentlemen of the Alabama Farm Bureau Federation; Mr. Bishop, the secretary; Col. J. M. Williams, a retired Army officer, and Mr. H. S. Houghton, and all of those officials of the Farm Bureau Federation heard the suggestion I made.

They have, every one, with the exception of Colonel Williams, who could not be gotten at, denounced the report sent out from this Washington bureau as false. I want to read Mr. Bishop's statement, which is very brief, and which has been concurred in by Mr. Rittenour, the president; Mr. Harry

Houghton, and would have been concurred in by Colonel Williams had he been in Montgomery at the time. The statement is as follows:

"The Alabama Farm Bureau Federation is supporting the offer of Henry Ford for Muscle Shoals, but does not wish to fight in an underhand manner, and in justice to General Steiner and the power company, I wish to say that I have only had two conversations with General Steiner with reference to Muscle Shoals, several other gentlemen being present on both occasions. General Steiner made no direct proposition of any kind, but merely suggested to us a solution of the Muscle Shoals controversy, which he, as a citizen of Alabama, believed to be practicable. I have read a typewritten copy of a statement which General Steiner has furnished the press, and this statement, so far as it relates to the conversations with me, is substantially correct. Furthermore, I wish to deny absolutely having made any sworn statement accusing General Steiner of any wrong doing in connection with this or any other matter."

He is the man upon whose authority this infamous article was sent out from Washington. There were two other witnesses who came along in this same paper and said the statement made was exactly true, and that I made no improper proposition or any improper suggestion.

Mr. GARRETT. Have you the article that was complained of?

General STEINER. Yes, sir.

Mr. GARRETT. I am talking about the basis of that charge.

General STEINER. The basis of that artice was the statement headed "American Farm Bureau Federation, 838 Munsey Building. Main 3342. Released April 7, Friday afternoon papers." Mr. Bishop has denied that there is a word of truth in the charge.

Mr. GARRETT. That is the way it was headed.

General STEINER. I would like also to get in the record, if I may, a statement issued by the Secretary of War on yesterday and published in the Washington Post.

The CHAIRMAN. That has nothing to do with the matter.

Mr. QUIN. It occurs to me General Steiner's denial covers the matter, and we have nothing before us.

The CHAIRMAN. It covers it very fully.

Mr. GREENE. The original charge that appeared in this Washington newspaper, in which it is said you made an improper advance to the Alabama Farm Bureau Federation——

General STEINER (interposing). Virtually a bribe, it says.

Mr. GREENE. Did that come from the headquarters of the American Farm Bureau Federation here in Washington?

General STEINER. The statement is headed "American Farm Bureau Federation, 838 Munsey Building, Main 3342."

Mr. KEARNS. Is it signed by anyone?

General STEINER. No; but there is a gentleman here who will swear who gave it to him.

Mr. KEARNS. Was this heading——

General STEINER. Mr. Roberts, who gave that statement to you?

STATEMENT OF MR. H. W. ROBERTS, WASHINGTON CORRESPONDENT BIRMINGHAM AGE-HERALD AND MOBILE REGISTER.

Mr. ROBERTS. I got it from Mr. Silver. It was released to the press, and I got a copy of it.

The CHAIRMAN. You had that printed in the papers you represent, did you? I do not want to ask you any question that would embarrass you.

Mr. ROBERTS. I did not print that story.

The CHAIRMAN. Did you receive a statement like this from Mr. Gray Silver?

Mr. ROBERTS. I got that from Mr. Gray Silver.

Mr. MILLER. Did Mr. Silver personally hand it to you?

Mr. ROBERTS. Yes, sir.

Mr. JAMES. Do you expect to commence a suit?

General STEINER. I do, sir.

The CHAIRMAN. We have the denial of General Steiner. We are very much obliged to you, General.

General STEINER. May I state, Mr. Chairman, that there was only one paper in Alabama, without my request or suggestion, that used the words "virtually

a bribe." The other papers refused to print the story, and the Associated Press refused to handle the story.

Mr. GARRETT. What was offered in the way of a bribe? Where is that in the proposition?

Mr. FROTHINGHAM. What was the charge?

General STEINER. The charge was that I suggested to them that $2,500,000——

Mr. GARRETT (interposing). Whom was that offered by?

General STEINER. The Alabama Power Co., they claim.

Mr. MILLER. Whose money was it?

General STEINER. I do not know, sir. It is a lie out of the whole cloth.

Mr. GARRETT. I want to know who made the offer, and to whom the offer was made.

General STEINER. The charge was made in this paper that General Steiner offered a virtual bribe of $2,500,000 to the Alabama Farm Bureau Federation to block the Ford offer. That was said to have been made by Mr. Bishop, and you have heard Mr. Bishop's denial, which I have read.

Mr. WRIGHT. Is there anything except the headlines carried by certain papers that indicates that you or anybody else offered a bribe?

General STEINER. The headlines carried that insinuation. There was one paper alone in Alabama and two or three in other places that carried that insinuation.

Mr. WRIGHT. Was there anything in the affidavit made by Mr. Bishop that indicates that you offered a bribe?

General STEINER. No; and Mr. Bishop denies it.

Mr. PARKER. We are anxious to know where the words "virtually a bribe" came from, and who put them in the papers. Who made this wording, and suggested it to the newspapers, or did the papers do it themselves?

General STEINER. I can only read you this heading, which says "By United Press leased wire." Then it says:

"WASHINGTON, *April 7.*

"A sensational charge that the Alabama Farm Bureau Federation has been offered a virtual bribe of $2,500,000 if it would seek to obtain from the Government the leasing of Muscle Shoals nitrate plant No. 2, and thus defeat the efforts of Henry Ford to obtain the entire project, was made public to-day by the American Farm Bureau Federation here."

Mr. PARKER. That is what is alleged in the paper as being the offer to the Farm Bureau Federation?

General STEINER. That is what is in this telegram.

Mr. WRIGHT. The whole basis of it is the Bishop affidavit?

General STEINER. Yes, sir.

Mr. WRIGHT. What is there in the Bishop affidavit that accuses you of any wrongdoing?

General STEINER. Absolutely nothing.

Mr. WRIGHT. So it is a newspaper story?

General STEINER. Absolutely a newspaper story of what was given out by the Farm Bureau Federation.

Mr. WRIGHT. Are you in anywise connected with the Alabama Power Co. directly or indirectly?

General STEINER. Now I am, but at that time I was not.

Mr. WRIGHT. Now you are?

General STEINER. Yes, sir.

Mr. WRIGHT. When did you become connected with the Alabama Power Co.?

General STEINER. On March 8 of this year.

Mr. WRIGHT. You were, at the time this article was given out, a representative of the Alabama Power Co.?

General STEINER. Yes; at the time the article was given out. That is all I have to say, Mr. Chairman, unless you would like to have a statement from Mr. Hobbie, who heard Mr. Bishop, Mr. Rittenour, and Mr. Houghton all state that my statement is true, and that this statement, which is on file with you here, they denounced as a lie, and it is a lie.

The CHAIRMAN. Mr. Dent, for the purposes of the record, you might file with the committee a statement by General Steiner as complete as he wants to make it, and I will see that it goes into the hearing along with Mr. Silver's statement.

Mr. DENT. And also Mr. Hobbie's statement. Furthermore, I want to state that Mr. Hobbie will make a statement that this same suggestion which General

Steiner made to the Farm Bureau Federation was made by Mr. Hobbie to the Rotary Club in Montgomery.

General STEINER. And I have been advocating it since that time and before that time.

The CHAIRMAN. If you will do that, we will put those statements in the record.

(Thereupon, the committee went into executive session, after which it adjourned.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Thursday, April 27, 1922.

The committee met at 10:30 a. m., Hon. Julius Kahn (chairman) presiding.

The CHAIRMAN. Colonel Barden has come up from Muscle Shoals. I suggested to him that probably Mr. Mayo and Mr. Worthington would take up a good part of this morning, so I told the colonel that if he wants to go to the Grant celebration with his fellow officers, I felt sure the committee would give him until to-morrow morning, and would be glad to hear him at that time.

If that is the desire of the committee we will act accordingly. Hearing no objection it is so ordered.

Mr. Mayo and Mr. Worthington are both here this morning in accordance with your request, and they will be very glad to take up the various matters in order that the committe may have the full information regarding Mr. Ford's offer.

Mr. Mayo, what is your desire? Do you want to make a statement, or would you prefer to have the committee ask you questions?

STATEMENTS OF MR. WILLIAM B. MAYO, CHIEF ENGINEER FORD MOTOR CO., AND MR. J. W. WORTHINGTON, REPRESENTING MR. HENRY FORD.

Mr. MAYO. Mr. Chairman, I have read over most of the testimony given at the hearings of the committee, and I have talked with Mr. Ford at quite some length about them, and have brought to his attention the more important objections of the different members of the committee and tried to get those points changed to meet the objections. To that end, I am able to submit the following changes:

First, in regard to the overflowed lands on Dam No. 3.

The CHAIRMAN. What section is that?

Mr. MAYO. That is paragraph 6. He has agreed to insert at the end of the paragraph the words, "through an agent to be named by the company."

Then in paragraph No. 7, he agrees to insert, in the sixth line, after the words "4 per cent of the actual cost of" the words "acquiring lands and flowage rights and of," all of which is intended to mean that he pays 4 per cent on the cost of the flowage rights.

In talking that point over Mr. Ford was aware of the fact that Mr. Worthington had had a considerable hand in purchasing flowage rights and land previously purchased by the Government and he said that he wanted the paragraph so changed that he could pick the man. He proposes to pick Colonel Worthington to buy that land, and he will be willing to pay 4 per cent on the cost.

Mr. MILLER. The Government to pay the original cost.

Mr. MAYO. Yes, sir.

The CHAIRMAN. That would be like the provision for the completion of the two dams. He would be willing to pay that amount in addition to the amount he is paying for the two dams.

Mr. MILLER. Is that additional cost of acquiring the flowage rights also to be included as a part of the fund to be amortized?

Mr. MAYO. Yes, sir.

Mr. MILLER. And the amortizing fund will be correspondingly increased to cover that?

Mr. MAYO. No.

Mr. MILLER. Then how do you intend to amortize it?

Mr. MAYO. We do not change our amortization figures, but those figures——

Mr. MILLER (interposing). What I am figuring on is this: Suppose it costs $3,500,000?

Mr. MAYO. Our amortization fund, as we have it, and have always had it, will retire $49,071,930 on the basis of 4 per cent. We have always figured the

cost of the two dams to be approximately at a little over $42,000,000. So at 4 per cent that will be more than enough to amortize the cost of the lands and the cost of the dams.

Mr. MILLER. Then your original figures included the proposition you are now giving, and you have prepared for that in the amortization fund. That was covered by the phraseology in the original offer regarding the overflowed lands at dam No. 3?

Mr. MAYO. No; the amortization provision was put in there before Mr. Ford agreed to the 4 per cent. That was in our original offer.

The CHAIRMAN. Is there any other question regarding this provision at the end of paragraph No. 7?

Mr. PARKER. Inasmuch as the United States has to pay interest on any sums it borrows from the time it pays the money out, is Mr. Mayo willing to say whether Mr. Ford is willing to pay interest on the cost of construction from the time the United States has to pay money out?

Mr. MAYO. That is not his intention.

Mr. PARKER. He will not do that.

Mr. MAYO. No, sir.

Mr. PARKER. I am talking about the present contract. He will not consider that?

Mr. MAYO. No, sir.

Mr. PARKER. Have you noticed the fact that in connection with Dam No. 2, if it takes three years to build it, you could average the payments that are made in the middle of those three years so they would average a year and a half for the completion of the dam, and for six years after the completion of the dam Mr. Ford pays no interest. That makes seven and a half years altogether.

Mr. MAYO. Oh, no.

Mr. PARKER. Yes.

Mr. MAYO. I think you are mistaken.

Mr. PARKER. Six years on Dam No. 2. He pays certain definite amounts.

Mr. MAYO. Yes; that is right.

Mr. PARKER. I understand that. So that seven and one-half times 4 per cent is 30 per cent of whatever the cost of the dam may be, that is retained by Mr. Ford, except that he pays $1,200,000, or $200,000 a year for six years.

If the cost of the dam is $24,000,000 that 30 per cent would be $8,000,000 approximately. If the cost is $28,000,000, as is estimated by the Army engineers, it amounts to about $8,500,000, and taking off the $1,200,000 that leaves $7,300,000, or thereabouts, which the Government has to pay in interest and which Mr. Ford does not return to it. I only want to point out those figures to you.

Mr. MAYO. There is an amount around five or six million dollars.

Mr. PARKER. I made it seven and one-half million. It depends on the cost of the dam. Mr. Ford is not willing to pay the interest from the time the United States has to pay it.

Mr. MAYO. No, sir; he could not afford to do it, because he does not get any power to pay for.

Mr. PARKER. He is not willing to fund that interest as a part of the cost of the dam?

Mr. MAYO. It all depends.

Mr. PARKER. If we add the interest up to the time the dam is completed as a part of the cost of the completed dam, and then 4 per cent is paid on that it would be another thing.

Mr. MAYO. If the Government invests the sinking fund at 4½ per cent it will retire it because at that rate it retires $58,570,003.

Mr. PARKER. That is another question. You say Mr. Ford is not willing to pay interest from the time the Government has to pay it?

Mr. GARRETT. What are the estimated figures of the cost to acquire the flowage rights?

Mr. WORTHINGTON. The estimates have varied from $1,000,000 to $3,000,000. Some people have put the amount as high as $4,000,000.

Mr. GARRETT. The change in the language which you indicate means that Mr. Ford would pay interest at 4 per cent, on that amount, whatever it is, which it costs to acquire the rights, during the life of the lease.

Mr. MAYO. Yes.

Mr. GARRETT. That is Dam No. 2, or Dam No. 3?

Mr. MAYO. That is Dam No. 3.

Mr. MILLER. There was some land mentioned in connection with Dam No. 2. In paragraph 3. I think it is——

Mr. MAYO (interposing). The acquired lands in No. 2 come in as a part of the $17,000,000, because that has been expended.

Mr. PARKER. Is all the land owned or acquired by the United States, so far as railroad rights of way are concerned, or are there any such things to be acquired? What is the amount of the land that is still to be acquired?

Mr. WORTHINGTON. They are practicaly all acquired.

Mr. PARKER. I notice in section 2 it says "including land for railroad terminal connections." Have those to be acquired still?

Mr. MAYO. You have them all; I do not know that the titles are all cleared.

Mr. PARKER. Do you mean you have to acquire land for any railroad connections?

Mr. MAYO. No; the railroad connections we refer to all exist, with the possible exception of one right of way. When Dam No. 2 is completed, the present right of way on which the track is now located will be overflowed. I think the right of way is already purchased to change this road so as to get up to nitrate plant No. 2 by a new route——

The CHAIRMAN. That is one of the questions Mr. Miller wanted to have answered, as to what this right of way and these railroad terminals are.

Mr. MILLER. There is a railroad running from the gravel dump and the wharf below the bridge up to Dam No. 2, a distance of probably 3 miles, I suppose.

Mr. WORTHINGTON. About 2 miles.

Mr. MILLER. I understand the railroad right of way is not owned by the Government but is simply on private property.

Mr. WORTHINGTON. With what kind of a permit to the Government?

Mr. MILLER. I do not know. I suppose the Government does not own that right of way.

Mr. WORTHINGTON. Do you not think, Mr. Miller, that the Government has some kind of a right to put the track on it?

Mr. MILLER. It made arrangements, it got a right of way from those people, but did not pay for it, and does not own it. You might call it an easement, or simply a lease; I do not know what it is; but Colonel Barden will explain the whole situation.

Do you mean the Government is to acquire land there and turn it over to you as a right of way?

Mr. MAYO. I think if that is a fact we will take what the Government has.

Mr. MILLER. Step into the shoes of the Government?

Mr. MAYO. Yes.

Mr. HULL. Have you thought of the question of the people who are interested, the local people down there, acquiring or getting options on this land themselves for the flowage rights of Dam No. 3? My idea about that is this, that that could be obtained by the local people to-day for a great deal less than it can be obtained after it is definitely decided that this development is going ahead, and it seems to me you could ask them to obtain those options and inform you how much they would cost, so that this committee would have something intelligible on which to base its conclusion before we finally decide the matter.

Mr. MAYO. That is a very good suggestion, and I will ask Mr. Worthington to make a statement to you on that.

Mr. HULL. There is so much interest in it down there that they will be willing to get those rights and get them at a reasonable figure. I will guarantee that if they are not obtained before the Government starts, if it does start, we will have to pay twice the price for them that we would now.

The CHAIRMAN. Right in that connection, Mr. Worthington, before you make your statement, a young lady called on me yesterday and told me she is selling Muscle Shoals real estate. She is selling the real estate on the basis of $200 a lot, $50 down and $75 in two installments. She wanted to know whether I could give her any information to help her increase the sale of the lots. I told her I could not give her any information whatever; but that indicates that the land is being dealt in to-day. Of course, if this thing runs on, and finally the committee makes a statement of what it has agreed upon, it is very likely that the price of those very lots will go up considerably, especially if it is known that the United States intends to buy property along there. So it is really a very important matter.

Mr. MAYO. There are at least 25 different stores in the city of Detroit where they are selling Muscle Shoals property. In New York recently I happened to glance out of the car window and I saw in gold letters on a store front "Muscle Shoals property." So I do not know how far they are going.

Mr. WORTHINGTON. If the committe will indulge me for a moment, I would like to make a statement based upon experience in connection with this subject which you are discussing.

In the first place, the suggestion of Mr. Hull is very appropriate. But if you expect to dispose of this question this year, you will never get the options you ask for in time. When it was decided to build Dam No. 2 the United States was confronted with the same proposition at Dam No. 2 that you are confronted with at Dam No. 3 now. The dam was ordered built, but the lands that are to be overflowed by that dam when it is completed had not been acquired.

Nitrate plant No. 2 had been ordered built and so had nitrate plant No. 1. In fact, the officers of the Ordnance Department went forward with their construction before any land whatever had been acquired. I am only asking the permission of this committee to show you that what you fear can be settled without any trouble. What we did with regard to that land was this—and I think you will find, if you will ask Colonel Joyes and General Beach, that they will confirm the statement—what we did was to appoint a committee of 25 citizens, and they took charge of that subject with the representatives of the United States charged with the acquiring of the lands—that is, the negotiations for them. We asked them to please step aside and put their limit on it. They did that. We got the properties for both nitrate plants. In the case of the lands for Dam No. 2 for $100,000 under the estimate of the United States engineers.

So I think, while it is very natural for Mr. Hull to make the suggestion he does make, that in the light of the experience we had—and you have identically the same kind of a case to contend with—we got those lands, as the records will show, and as Colonel Joyes will testify, for the nitrate plants lower than the limit he set. In the case of the lands at Dam No. 2 we got them for $100,000 under the estimate of the engineers of the War Department.

The CHAIRMAN. You appealed to the patriotism of the citizens.

Mr. WORTHINGTON. Not only that. The lawyers of that section went so far—and they will do it in this case, if it is necessary—I suppose you might say they issued a round robin in which they said they would not take cases against the United States in connection with those lands, and we could do the very same thing in this case.

It just turned out that I had charge of the organization that acquired the lands. I want to assure the committee that we will get these lands at a very reasonable figure, and we will get them very much under any three or four million dollars, and if they cost a million and a half there is going to be a fight, Mr. Chairman.

The CHAIRMAN. I notice Mr. Ford in his offer gives it as his opinion that they can be secured for $1,000,000.

Mr. WORTHINGTON. I think it is a million and a half.

The CHAIRMAN. Possibly that is stated in the hearings.

Mr. WORTHINGTON. With the experience I have had and my acquaintance with that situation, I can assure the committee that they are not going to cost over a million and a half.

Mr. PARKER. That was patriotism in the time of war.

Mr. WORTHINGTON. There were men who had as much patriotism as other people but those who wanted to make money did not get away with us.

Mr. MILLER. You realize that the question of whether the lands are procured at a reasonable price depends upon the estimates made by the Government engineers. I do not know what ability they have to estimate damages.

Mr. WORTHINGTON. It was not damages. It was a price.

Mr. MILLER. If the engineers made an estimate as they do on other things they might have made a very liberal estimate on those lands.

Mr. WORTHINGTON. In regard to the point you made, which is a perfectly proper question to bring up, I think it will be informing to the committee to ask Colonel Joyes what figure they did put on that. I will say to you that my recollection is that he put a limit of $75 an acre, and we got a great deal of that land donated. We are going to get a part of these lands donated.

Mr. McKENZIE. Whatever the cost under this proposal, Mr. Ford will be obligated to pay 4 per cent on the investment for 100 years?

Mr. WORTHINGTON. Yes, sir.

Mr. McKENZIE. If that is true, the matter of a few hundred thousand dollars or a few million dollars is not a matter of very grave concern to the Government of the United States, because it will be reimbursed several times over in the interest payments. But the man vitally interested in it is Mr. Ford, and I understand everybody down in your country calls him "Uncle Henry."

Mr. WORTHINGTON. They are nearly all kin to him.

Mr. McKENZIE. And so deeply interested in him that they will probably at least give him a fair deal in the purchase of these flowage rights. So I am not worried about that.

Mr. WORTHINGTON. You need not be.

Mr. McKENZIE. As long as we get 4 per cent.

Mr. WORTHINGTON. I was going to make a human suggestion about it. If this was to go through and Mr. Ford was to say he would have an understanding with the United States never to build that dam if they did not get down to their knitting you would see them come along all right, every one of them, right straight.

Mr. MAYO. Mr. McKenzie has touched on the real crux of this matter, which, in my opinion, has been overlooked to a great extent, and that is the great incentive to Mr. Ford to keep the cost, on which he pays 4 per cent, at the minimum. It is very essential for him to keep the time of construction to the minimum and to keep the cost to the minimum, because it is a tax on him for 100 years to come.

Mr. WORTHINGTON. I wish I could feel that Mr. Ford could expect that he would get the cost of cement for these dams down in the same proportion that he can get these lands down.

The CHAIRMAN. Is there anything further you desire to say in this connection?

Mr. MAYO. I was very much pleased that Mr. Ford consented to make the change in regard to the flowage rights, because I thought the members of the committee in general felt that he was not, perhaps, exactly fair on that one particular point.

The next change that really amounts to anything is that he agrees to take over what interest the Government has in the Gorgas plant. That is in subdivision (d) of paragraph 11. The changes are like this: In the first line, where it says "the steam-power plant built and owned," we cross out the words "built and" and insert "now," so it will read "the steam-power plant now owned," etc.

The CHAIRMAN. You omit "build and," and insert "now," so it will read "steam-power plant now owned," etc.

Mr. MAYO. Yes, sir. Then, at the end of the fifth line, starting with the words "United States," we cross out the balance of the paragraph.

Mr. MILLER. You eliminate everything after the words "United States"?

Mr. MAYO. Eliminate everything after the word "United States."

Mr. MILLER. Strike out everything after the word "properties" on line 5.

Mr. MAYO. Yes, sir.

The CHAIRMAN. Eliminate the rest of that paragraph.

Mr. MAYO. Yes, sir. Then, after that, we insert a new paragraph, which we will number 12, to take place of the present paragraph 12. The numbers of the remaining paragraphs advance one number. We insert a new paragraph 12.

The CHAIRMAN. How does the new paragraph read?

Mr. MAYO. The new paragraph 12 reads as follows: "The company agrees to accept and the United States to assign and transfer to the company all rights, title, interest, powers, and benefit belonging to or that may accrue to the United States or its legal agents as a party to its contract dated December 1, 1917, with the Alabama Power Co. in connection with said Gorgas plant and transmission line, and the company will assume all obligations and liabilities lawfully imposed upon the United States by said contract; but nothing in this paragraph shall be held to affect any question of the validity of any provision of said contract."

The CHAIRMAN. What do you mean by that, Mr. Mayo?

Mr. MAYO. That means that the company accepts the contract that now exists between the Government and the Alabama Power Co.

The CHAIRMAN. In other words, the validity of the Alabama Co. contract Mr. Ford will assume, and the litigation that may arise over that matter?

Mr. MAYO. Yes, sir.

Mr. STOLL. He reserves the right to test that contract.

Mr. MAYO. We take it over from the United States, reserving any rights they have.

Mr. GARRETT. You mean by that language after the semicolon, "but nothing in this paragraph shall be held to affect any question of the validity of any provision of said contract," so far as that question is concerned, the question of whether it is valid or not is not raised in the contract?

Mr. WORTHINGTON. Not at all.

Mr. MILLER. That depends upon whether or not this is an assignable contract on the part of the United States—that is, the contract between the United States and the Alabama Power Co. as it now exists.

Mr. WORTHINGTON. It provides for an assignment.

Mr. MILLER. The contract?

Mr. WORTHINGTON. Yes; I think it is toward the last part of the contract.

Mr. MILLER. That is a clause that has interested me considerably. You will find at the bottom of paragraph 36 of the Alabama Power Co.'s contract, near the close of the contract, on page 162 in the hearings, in the testimony of the Chief of Engineers, this language: "*Definitions.*—Whenever in this contract the words hereinafter enumerated are used, they shall mean what is set opposite them:

"Contractor: The party of the first part and its legal representatives, successors, and assigns." That is the definition of the word "contractor." That would indicate it is assignable on the part of the party of the first part. The party of the first part is the Alabama Power Co.

Mr. MAYO. We read that contract quite carefully, and we came to the conclusion that it is assignable. I do not remember where we found it.

Mr. MILLER. If you are willing to take the chance and believe it is assignable, I will not discuss the matter further.

Mr. MAYO. We will take what rights the United States has, whatever they are. That is the best way to put it.

The CHAIRMAN. This refers to the contract of the Alabama Power Co.

Mr. MAYO. Yes, sir.

The CHAIRMAN. The Air Nitrates Corporation also claim some rights in nitrate plant No. 2. Do you make any proposition respecting them?

Mr. MAYO. No, sir.

Mr. PARKER. You do not assume litigation there?

Mr. MAYO. No, sir.

Mr. PARKER. Nor in connection with plant No. 1 either?

Mr. MAYO. No, sir; we concluded that there will be none.

The CHAIRMAN. I hope you are right; but I am inclined to think they are going to litigate with the United States Government.

Mr. WORTHINGTON. Mr. Chairman, if they do, we are ready to scrap it out or negotiate it out with the Alabama Power Co.; and if we are willing to do that, do you not think that a 50–50 proposition is all right and that the United States might take care of one of those propositions at least?

Mr. PARKER. We are not on the stand.

The CHAIRMAN. The fact of the matter is that when you get into litigation, and especially if the United States Government gets into litigation, my experience has been that it is very long drawn out. The representative of the United States requests delay and delay and delay; he is so busy with other matters. And the representative of the other party will also ask for delays and delays. Of course, that is a matter for the committee to take up, but I just wanted to call your attention to it, and say it is one of the matters that are confronting the committee at this time.

Mr. PARKER. Do I understand you correctly, gentlemen, that you say that Mr. Ford's company will not assume the liabilities of the United States on the contracts for plants Nos. 1 and 2 for the expenses and litigation thereunder, or guarantee the United States from loss by reason thereof?

Mr. MAYO. No, sir.

Mr. PARKER. But they are willing to take over the contract in which something comes to them in the way of payment for the Gorgas plant, but not one where there is any liability.

Mr. WORTHINGTON. That is one way to say it.

Mr. PARKER. The Gorgas plant is one in which the United States is entitled to a fair value, and that is to be assigned to Mr. Ford. I think that is a fair way to state it.

Mr. MAYO. The legal talent of the War Department have declared the Air Nitrate Corporation contract is null and void, so it seems to me that is pretty clear.

The CHAIRMAN. This committee has not been able to get the opinion of the Attorney General as to that matter. But I expect to have it almost any day.

Mr. STOLL. You will notice the wording of the Ford offer relative to plant No. 2, in paragraph 11, subdivision (a), where it says, "and privileged to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred or assigned to a purchaser of nitrate plant No. 2." So they are only getting those things that the Government has the right to transfer and assign. So if the Government has not got it, they do not get it.

The CHAIRMAN. That is the very point I am making, because the Air Nitrates Corporation testified before this committee that in their opinion they have certain rights in nitrate plant No. 2. The Judge Advocate General of the War Department denies that they have any rights whatever. There is an issue right there. If they start to litigate the matter with the United States it will probably be determined in court, and nobody can foresee what the decision will be, because as I understood the Air Nitrates Corporation people when they were before the committee they testified that they were approached to install the cyanamid process in nitrate plant No. 2, and they say that if they had not been willing to do that they would have been accused—the war being on—of being pro-German, and probably their property would have been seriously injured. So they fell in with the plans of the Army officers and finished the plant for the Government and had section 19 inserted in their contract, which section Secretary Hughes, when he was practicing law, told them was all right.

Mr. STOLL. The point I make is that all we do under this contract is to sell to Mr. Ford whatever patent rights we may have. If we have not anything, Ford does not get anything.

Mr. MILLER. As I understand it, the modification of the contract as now stated by Mr. Mayo relates only to the right to use the patents and processes held by the Air Nitrates Corporation, and under this modified contract the Ford Co. steps into the shoes of the United States Government.

There is a question back of that. If you will turn to part 2 of the hearings, on page 138, you will find clause 19 of the agreement between the United States and the Air Nitrates Corporation in regard to the sale of the plant. There is the proposition concerning which litigation will come to the United States, if we consummate the deal with Mr. Ford, and that article reads as follows:

"Sale of plans: If upon cessation of this war or for any other reason the United States determines to cease the construction, equipment, or the operation of any of the said plants, and to dispose of the same, the agent shall be given the first opportunity—for a reasonable period of time, not to exceed six months after receipt of written notice, stating the determination of the United States to dispose of the same, and the material terms upon which such disposition will be made—to purchase the same upon as favorable terms as the United States is willing to accept therefor before the United States shall sell the same to any other party."

It is from that angle that litigation will probably come to the United States in the event that the deal is consummated with Mr. Ford.

That is followed by Article XXI, which reads as follows, under the subheading "Contracts nonassignable": "This contract shall not, nor shall any rights to receive payment or any other interests therein, be transferred or assigned by the agents to any person, firm, or corporation without the written consent of the Secretary of War."

That provides that the Air Nitrates Corporation can not assign their contract without the written consent of the Secretary of War.

Mr. STOLL. What is the date of that?

Mr. MILLER. That contract is dated the 8th day of June, 1918.

Mr. STOLL. They had no authority to enter into it.

Mr. MILLER. I want to call the attention of the committee to those two articles in the contract between the United States and the Air Nitrates Corporation.

The CHAIRMAN. I have had those in mind.

Mr. MILLER. I had intended to call Mr. Mayo's attention to them, and to the fact that litigation will be brought against the United States, and in that we will have to fight our own battles, and I do not see how the 50–50 proposition Mr. Worthington refers to can possibly affect Mr. Ford.

Mr. WORTHINGTON. I will withdraw that.

Mr. HULL. I am like my friend, Mr. Miller; I do not see that the 50–50 proposition has anything to do with this. I might say I look at it from another angle. I am quite hopeful that we may be able to work out a proposition that Mr. Ford will accept and that we can get Congress to agree to. I want to call your attention to this, that your proposition in regard to the Gorgas plant simply retains the rights of the Government and transfers them to Mr. Ford. I very much doubt, and have always doubted whether we have a legal or a moral right to transfer that contract to anyone. It may be that the contract was not justified. I am doubtful of that, but the contract is there, and it is perfectly plain if you are going to get this measure through Congress you will have that to meet, which to me is an almost insurmountable difficulty which you will have to explain.

Here is a contract in which you agree positively that you will assign this property back to them at a fair price if you decide you do not want it yourself. Now, you turn it over to somebody else.

I might call your attention to this, that from a financial standpoint it will be attacked. You are buying this property down there at approximately 5 per cent of the value. I think outside of this proposition we would be justified, because you make a contract to maintain it for national defense. That is the main thing to me, but in this proposition you take over property and pay about 5 per cent for property that at the time you take it over is worth 50 to 60 per cent of its cost. You thereby lessen the purchase price which you are paying for the property. Instead of paying out $5,000,000 for this property, Mr. Ford will be paying us practically $2,000,000. I want to call your attention to this fact, and I am not saying this because I want to shoot any holes in Mr. Ford's proposition, but we can not go on the floor of the House and camouflage that proposition. There are bright minds in the House and they are going to see that particular angle of it. I just want to call your attention to that fact.

Mr. STOLL. It is no less than the original bid. The original offer was to take over the whole plant.

Mr. HULL. But you lessen the purchase price, because that proposition practically amounts to cash.

Mr. CROWTHER. Is there any harm in reading section 3 of the original proposition that the committee adopted to take this up section by section? It says, "That any proposal for the purchase, lease, or use of the Muscle Shoals property of the United States Government must be for the entire property except the so-called Gorgas plant and the transmission line therefrom."

That is totally at variance with this proposition, and it seemed to me that if they are confiding in us we might as well let them know what our position is up to this time.

Mr. MCKENZIE. Mr. Mayo, I am going to ask you a straight question: In case this committee and you come to an understanding on all other essentials pertaining to this contract, would you not be willing to forget the Gorgas plant absolutely?

Mr. MAYO. I have never been able to get Mr. Ford to say so, and judging by the talk we had before at the hearings and with the committee individually I was of the opinion that everybody would be satisfied if Mr. Ford would agree to take what the Government had.

Mr. WORTHINGTON. In the hearings certain members asked the question whether, if it could be arranged, we would take over just what you had and fill your shoes.

Mr. MILLER. In regard to Mr. Worthington's statement or suggestion, some individuals around the table were willing to do that. But suppose it turns out to be the concensus of opinion of a majority of the committee that we will have to negotiate along the lines of the elimination of the so-called Gorgas plant—and some of the members of the committee may think there is a moral obligation for the United States to retain inviolate its existing agreement with the Alabama Power Co., however improvident that contract might have been from the standpoint of the Government—suppose that the committee, in the process of its deliberations, in an effort to come to an understanding with Mr. Ford and his company deem it necessary in the interest of the good faith

of the United States Government not to deliberately breach its own solemn contract, and for the purpose of carrying out a moral obligation, which may have been improvident—if it is the judgment of the committee that the Gorgas plant should be eliminated from the consideration of Mr. Ford's offer, even so far as to step into the shoes of the United States Government or inuring to the benefit of that contract, when carried out, that this committee may possibly come to the conclusion, so far as Mr. Ford is concerned, that we are willing to negotiate on all the balance of the Government holdings in and about Muscle Shoals, with the exception of the Gorgas plant, would Mr. Ford be willing to accept that?

I understand that was the point Mr. McKenzie put directly to Mr. Mayo. That, of course, injects an angle in here, or an element that we had not before considered. We want to know the attitude of Mr. Ford if the committee comes to that conclusion, in order to favorably consider, or to consider the Ford offer, whether Mr. Ford and his representatives would be willing to comply with the suggestion and eliminate in the consideration of his offer everything pertaining to the Gorgas plant.

Mr. MAYO. The only reply I can make right now is that I had to argue considerably to get Mr. Ford to agree to make the change I have submitted.

Mr. HULL. May I ask you this question? You said you had this conference with Mr. Ford in regard to this matter. What is the reason Mr. Ford wants the Gorgas plant so badly?

Mr. MAYO. As I stated before, that is the cheapest source of power for him to begin with, to augment his primary power.

Mr. HULL. This is true, that before we went down there we were told that there was such a wonderful supply of coal down there. There is a lot of wonderful coal there, much nearer the plant, and this whole proposition could probably be solved, and I presume the committee would be willing to let you have the transmission lines to Jasper. There is all kinds of coal between Jasper and Muscle Shoals. If I understand the situation correctly, I would be willing to say that the transmission line down to Jasper might go, but there is the point. I can not see why you want that plant, except that Mr. Ford—and I will say it very plainly—wants to drive a financial bargain to his advantage by getting hold of a piece of property that has a cash value.

Mr. MAYO. The whole thought was, when we made up the contract, that the Gorgas plant, which is only about half the size of the steam plant at nitrate plant No. 2 (when we were first called upon for steam power), would give use a small unit to start, and we could run that up to its maximum output before it was necessary to start the big No. 2 plant. All the time the coal is at the door; it is the cheapest power you could make.

Mr. HULL. Do you think we would have the right to take over the mines of the Alabama Power Co. If it was our property, if we stepped into the Government's shoes, there is no question of our being able to take the power. It is in the contract now that you can take it.

Mr. HULL. There would be no question if you got the right——

Mr. WORTHINGTON (interposing). I would like to supplement Mr. Mayo's statement to this extent. The Alabama Power Co. may very reasonably work that and wish that power. Their water-power development on the Coosa River might wish to enjoy it. The Government's power plant at Muscle Shoals needs it as much as the Alabama Power Co.'s power plant on the Coosa River needs it, and I have always felt that if there was any partiality about it, or if there was any doubt about it, it ought to be decided in favor of the United States Government power plant at Muscle Shoals.

Mr. CROWTHER. But under this proposition it would cease to be United States Government property and it would be put into the hands of a private concern.

Mr. WORTHINGTON. It is always your property. We merely lease it.

Mr. HULL. I wish Mr. Ford were here; I would like to ask him this question. I want to ask you this question: Suppose the Government had gone to Detroit and taken over a part of Henry Ford's property in Detroit with the same kind of a contract that was made with the Alabama Power Co., and then at the end of the war the Government had turned around and had not carried out the contract, but had turned it over to some competitor of Ford's. Would you think we were dealing fairly with Henry Ford?

Mr. MAYO. The answer to that is that you never would have made a contract like that with Henry Ford; he would not have been a party to it.

Mr. HULL. Suppose we had? I can not see myself—and I try to see the other side—I can not see anything in that contract but what any firm would have demanded at the time, if a plant had been built into the other people's plant,

and that is what they did. I do not say they ought to have done it, but I do say they did do it; they made a contract that at the end of the war if they wanted to sell it they would have the first right. If we had made that kind of a contract with Henry Ford, would you, as the representative of Henry Ford, say that we were treating Henry Ford right in turning it over to your competitor?

Mr. MAYO. I have to come back and say we would not have been a party to any such contract.

The CHAIRMAN. Mr. Mayo, this resolution that Mr. Crowther read to you awhile ago was agreed to by the committee day before yesterday, I believe. A special subcommitee of this committee had been appointed and they formulated the resolution to which Mr. Crowther referred.

Mr. MCKENZIE. I think these propositions ought to be perfectly clear: First, you will take over that property; you have to carry out the proposition of keeping the plants ready for the manufacture of munitions; and, as your contract says, to manufacture fertilizer in time of peace, and leave out the Gorgas plant. Those are just basic propositions, trying to get down to something we can work on.

There are a lot of other things in connection with the contract that the committee will take up with you gentlemen. I can see a greater reason why Congress should determine to get a settlement of the Muscle Shoals proposition, and probably in order to do that we will have to eliminate some things. Whether we can make a contract with Mr. Ford is another proposition; some of us had hoped it might be possible. He is a business man and he looks after it from a business standpoint, and I can see how from a business standpoint it would be to his advantage to have the Gorgas plant. But, on the other hand, I can see difficulties in attempting to get it delivered to him.

Mr. MAYO. He made certain offers here, and in our testimony we tried to explain them, and in doing so we ran up against the objections of the committee. The outstanding objections are what we have been endeavoring to overcome. I thought I had covered them all, and I have endeavored to so clarify the offer that it would satisfy the greater proportion of the committee.

Mr. MCKENZIE. I think you have, so far as assuming legal liability is concerned.

Mr. MAYO. Of course, if I had known the conclusions you had come to before that might have had some bearing on the proposition.

The CHAIRMAN. I want to say that this committee which framed this proposition had with one exception been down to the plant at Muscle Shoals and at Warrior, and they agreed upon these principles which they claim are basic. We have simply agreed to them for the present. Of course, in the final analysis there may be changes, but the committee felt that everything that was done by the full committee should be done along those lines.

Mr. MCKENZIE. Is it not fair to state that there was an effort on the part of the committee to make some progress toward settlement?

The CHAIRMAN. Yes; that is so, absolutely.

Mr. WRIGHT. I merely say, Mr. Chairman, it was not the intention of this resolution to exclude from any consideration the Gorgas plant, but what the resolution means is that no proposal could be entertained which shall fail to include all the property except the Gorgas plant. It simply limits it in that way. It was our intent that we would not entertain any proposition that did not include all propositions except the Gorgas plant.

Mr. CROWTHER. I want to call attention to the fact that these resolutions were conceded to be constructive propositions toward securing something and establishing a basis.

Mr. QUIN. My conception was that this committee would formulate something on which we could get together, so that we could get to some understanding.

Mr. PARKER. I do not think that the intent of that resolution was—or that the whole committee intended to pass a resolution which would meet only one proposition. If we were satisfied that it could best be done that way we would divide it into parcels.

The CHAIRMAN. That is understood.

Mr. HULL. I might say to Mr. Mayo that I have from the very start been one of those who has insisted that the Gorgas plant should be eliminated. It has never occurred to me I have never said to anyone—and I said it very expressly on the trip we made down there—that that was one of the first thing to do—to eliminate the Gorgas plant—and I never said anything to

infer to mean that the money that was to be obtained for it should in any way enable Henry Ford to profit by the plant at Gorgas. I have been unable and I am still unable to find any reason why it is necessary for Ford to have the Gorgas plant. It is 80 miles from Muscle Shoals.

Mr. GARRETT. In the first plant, if I read this amended section 12 correctly at all, of himself he eliminates that, so far as this committee is concerned and so far as the Government is concerned, provided Mr. Ford puts up a proper bond to make it a success—it eliminates the Gorgas plant. Here is the language: "The company agrees to accept, and the United States to assign and transfer to the company, all rights, title, interest, powers, and benefit belonging to or that may accrue to the United States or its legal agents as a part to its contract dated December 1, 1917, with the Alabama Power Co. in connection with said Gorgas plant and said transmission line, and the company will assume," that is the Ford Co., "all obligations and liabilities lawfully imposed upon the United States by said contract."

Now, if I understand that language, and the representatives of Mr. Ford say here—and they can correct me if I am wrong—that in the disposition of this property to Mr. Ford or his company, that when the United States transfers or assigns whatever rights or title it may have in the Gorgas plant and transmission line to Mr. Ford, Mr. Ford accepts it, and he guarantees the Government of the United States against any damages of any kind or character growing out of any litigation by the Alabama Power Co. against the United States. Is that true or not true?

Mr. MAYO. That is true.

Mr. GARRETT. That is what you propose to do?

Mr. MAYO. Yes, sir.

Mr. GARRETT. This Gorgas is eliminated. Let the Alabama Power Co. stew if they want to, provided Mr. Ford puts up a sufficient bond to satisfy Congress that the United States Government will be protected against that. Then the Alabama Power Co. will have all it could ever hope to get out of the Government.

Mr. HULL. Is that your idea of the word "elimination"? If it is, I have a very poor opinion of the dictionary from which you get that definition of the word "elimination."

Mr. GARRETT. In the first place, I am going upon the assumption that the Government is always in its capacity. I do not trickle around with the Alabama Power Co. or the Air Nitrate Corporation. I do not mind saying that I do not think there is a bit of moral or legal obligation on the part of the United States to recognize the Alabama Power Co. But I am not discussing that matter before the committee. I never have done it, but I do not believe, as a lawyer, that it will stay in the Supreme Court of the United States long enough to get the devil knocked out of it.

All they propose to do is to purchase the plant from the Government at a fair value. If they can not get it, what are the damages? The Government can not stand back in the disposition of a great project to see whether or not the Alabama Power Co or the Air Nitrates Corporation is going to come into the district court and tie the hands of the Government. The Government can act and make itself secure. If they have rights under the contracts, the courts are open to them. The Alabama Power Co. is not entitled to that plant by and of itself, but they are entitled to damages growing out of that contract, and when they get those damages in dollars and cents they are satisfied and they are settled with. That is the way I look at that proposition.

Mr. MAYO. If I may. I would like to say that I am sure you will find Mr. Ford will grant the Alabama Power Co. every right they have under their contract if it is passed over to him, and I think whatever moral obligation the Government has will be taken care of.

The CHAIRMAN. What is your next proposition?

Mr. MAYO. We made some other classifications, but if my memory serves me right, I gave them to you at the last hearing at which I appeared before you. I endeavored, as far as I could, to take care of Mr. Greene's children's children. I am sorry he is not here this morning. But in paragraph 17, which will now be changed to paragraph 18, as the numbers have all been advanced, that is provided for.

The CHAIRMAN. The provisions in sections 15, 16, and 17 are matters that you agreed to on the former occasion?

Mr. MAYO. Yes.

The CHAIRMAN. You now refer to section 18?

Mr. MAYO. The old number of that section is 17. On the fourth line after the word "be" we strike out the balance of that paragraph, inserting after the word "be" on the fourth line the words "prescribed by Congress."

The CHAIRMAN. That seems to meet Mr. Greene's contention, and also Mr. Hill's. In other words, at the end of the 100-year period Congress is to determine what the future of the company shall be.

Mr. WORTHINGTON. As Congress ought to do.

Mr. PARKER. But the company is to have the preference to negotiate on such terms as may be prescribed. The preferred right is there still.

Mr. CROWTHER. That is the same right which the Alabama Power Co. demanded in their contract. They demanded the first right to purchase.

Mr. WRIGHT. There was no "first right to purchase" about it. It was the right to purchase.

Mr. CROWTHER. This is a right, is it not?

Mr. WORTHINGTON. May I suggest, Mr. Chairman, that the water power law gives the party who builds dams under those laws the preferred right at the end of 50 years?

The CHAIRMAN. Is that the end of the proposals you desire to submit to the committee?

Mr. MAYO. Yes, sir.

Mr. MILLER. I want to refer back to section 15 of Mr. Ford's offer. That is the section that contains the obligation on the part of the company for the manufacture of fertilizer. There has been considerable difficulty as to the interpretation of that section and the binding obligation on the part of Mr. Ford to supply the people of the United States who depend upon a continuous flow of fertilizer from that plant during the lease period.

What I want to suggest to you is the rewriting of sections 15 and 16, so as to make it unmistakable to our colleagues on the floor of the House what the strictness of the obligation on the part of Mr. Ford's company is in the matter of assuring the people this flow of fertilizer. That is one of the moving causes for the United States Government to negotiate with Mr. Ford, or one of the moving causes leading up to the entering into the contract with Mr. Ford. Those paragraphs seem to be not as full as they might be, and inasmuch as we are assured that Mr. Ford undertakes and will undertake to guarantee this outflow of fertilizers.

Mr. PARKER. Whether from plant No. 2 or otherwise.

Mr. MILLER. Plant No. 2 is the plant we are talking about. I want to see if you would agree to a rewriting of that paragraph to make it absolutely plain, or at least plainer than the phraseology now makes it. So I prepred a proposed change in the paragraph, or rather a rewriting of that paragraph, along lines something like this:

"15. The manufacture of land fertilizers and the sale and distribution of the same to the users and consumers thereof being one of the moving considerations of this movement by the Government of the United States and its people, the company expressly agrees that it will continuously, throughout the leasing period, unless prevented by accidents, fires, unavoidable strikes, or other like causes beyond its control, operate nitrate plant No. 2 and manufacture therein ammonium nitrate in amount equal to its present annual capacity of 110,000 tons annually, which ammonium nitrate the company will convert into a proper fertilizer ingredient or element, and that it will, furthermore, manufacture, purchase, or otherwise procure the other and remaining necessary additional fertilizer, ingredients, and elements in sufficient quantities proportional to the said 110,000 tons of ammonium nitrate so converted, and will mix and blend such fertilizer, ingredients, and elements in such proportions as to make properly balanced land fertilizers approved by the Department of Agriculture. If during the lease period said nitrate plant No. 2 is destroyed by fire, accident, riot, or for any cause, the therein machinery and equipment capable of producing at least 110,000 tons of ammonium nitrate per annum. The process by which the same shall be manufactured shall be approved by the Secretary of War, and the company further agrees:

"(*a*) To determine by research whether by means of electric-furnace methods and industrial chemistry there may be produced on a commercial scale fertilizer compounds of a higher grade and lower price than the consumers and users thereof have in the past or at the present are able to obtain and to determine whether in a broad way the application of electricity and industrial chemistry

may accomplish for the agricultural industry of the country what they have accomplished for other industries, and if so found and determined, to reasonably employ such improved methods.

"(*b*) To maintain nitrate plant No. 2 in its present state of readiness or its equivalent for immediate operation for the manufacture of materials necessary in time of war for the production of explosives or other munitions of war."

Then I take up paragraph 16 and eliminate therefrom the method of appointing this board which shall superintend or shall inquire into the cost of the production and the zoning of this nitrate. It reads like this:

"16. In order that the users thereof may be supplied with fertilizers at fair prices and without excessive profits, the company agrees that the maximum net profit which it shall make in the manufacture and sale of fertilizer products shall not exceed 8 per cent of the actual fair cost of production thereof. In order that this provision may be carried out, the company agrees to the creation of a board of not more than nine voting members, to be chosen in the following manner: The Secretary of Agriculture or his successor shall nominate to the President 14 candidates therefor. The President shall select therefrom not more than seven of said candidates and shall submit the names of said seven to the Senate, which body shall confirm the same. That if the Senate shall not confirm all of said seven, the President shall send additional names from the said list of candidates until the Senate shall have confirmed each of said seven. That in addition to said seven so confirmed by the Senate the company shall have two members on said board; all of said members shall be voting members. A representative of the Bureau of Markets of the Department of Agriculture or his successors appointed by the President shall also be appointed by the President to serve in an advisory capacity without right to vote.

"The said board shall determine what has been the cost of manufacture and sale of fertilizer products for the past year and the selling price thereof, and, if necessary, for the purpose of limiting the annual profit to 8 per cent as aforesaid. The said board shall regulate the price at which said fertilizer shall be sold by the company. For these purposes the said board shall have access to the books and records of the company at all reasonable times. In order that such fertilizer products may be fairly distributed and economically purchased by the users and consumers thereof, the said board shall determine the equitable and territorial distribution of the same, and may in its discretion make reasonable regulations for the sale of all or part of such products by the company to said users and consumers, their agencies or organizations. If and when said board can not agree on its findings and determinations, then the points of disagreement shall be referred to the Federal Trade Commission or its successors for arbitration and settlement, and the decision of said commission in such cases shall be final and binding upon the board."

The CHAIRMAN. I think it proper to state to Mr. Mayo and Mr. Worthington that the committee itself has not passed on these two proposals that you have spoken of, Mr. Miller, and that the matter will be taken up by the committee when you present them. Therefore, the full committee has not been able to discuss the matter, although I dare say that most of the members of the committee feel that some provision of that kind ought to be made by Mr. Ford.

Mr. MILLER. What I wanted to suggest to Mr. Mayo was simply along the lines that Mr. Ford has suggested in his offer, and fully in accord with the intent of Mr. Ford as outlined in his offer, which is corroborated by your statement. Those paragraphs 15 and 16 should be rewritten in a little bit different language, so that our colleagues on the floor of the House can not assault us by the assertion that the agreement on the part of Mr. Ford to manufacture fertilizer is not as strict as it should be. We have got to be prepared to meet all kinds of arguments, and there are some very clever men on the floor of the House, and if those paragraphs can be perfected along lines exactly as Mr. Ford has them here but in a little different phraseology so as to clear up positively any such assault on this committee, I think probably you would not be adverse to such a suggestion.

Mr. MAYO. If you will give me a copy of your suggestions, I will submit them. Of course, we spent a great deal of time with the representatives of the American Farm Bureau Federation and other farmers' organizations preparing this draft.

Mr. MILLER. That refers us back to paragraph 16. But, in the next hundred years, during the life of the contract, there will be a thousand farm organizations come and go. The existing organizations have only been organized

within the last few years. The Department of Agriculture is the administrative branch of the Government that speaks for the agriculturists of the country. There is much more of a degree of permanency attached to the Department of Agriculture than the farm organizations that come and go like passing crowds. If the Department of Agriculture could nominate their men, limited, perhaps, to the agriculturists of the country. What I was trying to obviate in my suggestions was the lack of permanency in this proposition. I wanted to put it into a permanent tribunal, whereas these passing organizations would probably not be permanent during the lifetime of your contract.

Mr. MAYO. This was supposed to include the three leading representative farm organizations.

Mr. MILLER. They call themselves leading organizations now, and perhaps they are. But what will be the condition, so far as that is concerned, 50, 70, or 90 years from now?

Mr. MAYO. The intention was that if they passed out it would still refer to the three leading organizations as they may be at a future time.

Mr. MILLER. Suppose the Farm Bureau Federation should become extinct within the next 5 or 10 years. It has come up within the last five or six years. Suppose it should leave no assigns or successors, and there should be 25 farm organizations, each of them claiming to be the successor of the Farm Bureau Federation. The utter confusion resulting therefrom would torment your company as long as it lives, and torment the Government of the United States. If you could put that board into a permanent department of the Government it would exist as long as the Government exists, and it would be in a department which is directly in touch with the agricultural interests of the country, and it seems to me it would be a very wholesome change. I do not suppose that would be a material thing to you.

Mr. MAYO. I do not think so. All I can say now is, if you will give me a copy of your proposed changes, I will go over them and study them.

Mr. CRAGO. In the contract before us you have only agreed to supply farmers with this fertilizer, and the definition of what constitutes a farmer is rather uncertain.

Mr. MILLER. Suppose that is changed to read horticulturists instead of farmers?

Mr. CRAGO. Under this nobody who uses fertilizer except a farmer could purchase that, and you could not purchase it, because you are not classed as a farmer.

Mr. MILLER. Why not say "the users and consumers thereof"? I might want some of that fertilizer for my own yards.

The CHAIRMAN. I would say there is a great quantity of fertilizer used in the citrus-fruit section of California.

Mr. CRAGO. Municipalities might want to use it for their parks.

Mr. GARRETT. I am going to say to Mr. Mayo and to Mr. Worthington that I, perhaps, feel a greater interest in the fertilizer end of this contract than in the rest of it, and the statement of Mr. Mayo, made in a previous hearing, has caused considerable confusion in the minds of some members. That statement was that if, during the life of this contract, Mr. Ford could not make fertilizer at a profit he would not make it at all. I am absolutely opposed to anything like that being even thought of in connection with this contract. I want this contract to state specifically that he is going to make this fertilizer either in the concentrated form, or in the commercial form, ready for distribution during the life of this contract.

I would not go on the floor of the House and speak to defend a contract that would give this plant to Mr. Ford or to anybody else if, under the contract, they would have a chance to quit making fertilizer at any time, because the fertilizer he is to make may be the lesser thing to him. It is the greater thing to a vast number of American people, and I wanted that made very plain. I want the contract to be perfectly clear on that, because whether or not he can make it at a profit, I am not willing to turn this proposition over to anybody if he can abandon the fertilizer end of it because he is not making fertilizer at a profit.

Mr. PARKER. I want to ask a question as to whether Mr. Mayo would be willing to put in an agreement supplemental to paragraph 15 to the effect that the company will manufacture and market annually the amount of fertilizer mentioned, even if the company had to use other means to do so, than plant No. 2, and even if they can not do it at a profit. I think they may have to use

some other factory than No. 2 to make it. But we want to have an agreement to make fertilizer no matter where it is made.

Mr. GARRETT. I think that can not be impressed upon you gentlemen too strongly. For many years I was connected with the fertilizer business, especially as an actual tiller of the soil, and I do know that that is what the people of this country who use fertilizer—and that includes all the farmers—are thinking about. They are not thinking about electric power. They are thinking about how much fertilizer you are going to make, and how much they are going to be able to get, and I want that made so plain that it will not be open to question.

Mr. MAYO. What I intended to imply at the previous hearing was that, of course, if Mr. Ford could not make it at a profit, he might have to quit. If anybody was making fertilizer at a loss continuously, they would have to quit some time. Of course, since that plant has every requisite for the making of cheap fertilizer, there is no reason why he can not make it as cheap or cheaper than anybody else all the time.

Mr. GARRETT. That is the very question involved. Mr. Ford or anybody else who takes that plant is supposed to take the plant and meet the fertilizer needs of the country every year for the next hundred years; that is what I want written very clearly in the contract.

Mr. HULL. While I think, perhaps, with Mr. Miller, that there ought to be some clarifying language there, you do not mean to say that if, due to improved processes and other things, fertilizer could be manufactured for $40 a ton, and under this contract it was being made for $50 a ton down there, and that was as cheap as it could be made—of course, according to your idea, he would have to make continuously fertilizer from 110,000 tons of ammonium nitrate that was costing him $50 a ton. Of course, the price of that would still be $50. There might be somebody else making it for $40. He is not selling any; he runs 10 years and piles up, say, a million dollars' worth of it.

Mr. GARRETT. That is not the idea at all. The idea is that he is going to keep up with the improved methods, and when he does that he is going to be able to manufacture fertilizer as cheaply as anybody else. I do not mean to say he is going to stick to the same idea he starts with. If somebody else has an improved method, he must take up that process, or there must be language in there which will guarantee this cheap fertilizer to the people. That is the big thing in this contract, and it is the most important thing so far as getting it through the House of Representatives is concerned.

Mr. MAYO. We thought we had covered that pretty well. In the first place, we say we shall operate a research department.

Mr. GARRETT. That is what I mean. That means that with the assistance of the research department you are going to keep up with the modern equipment and the modern methods for the manufacture of fertilizer. If you do that, Mr. Ford or anybody else can manufacture fertilizer as cheaply as anybody else.

Mr. PARKER. But the contract is limited to the operation of plant No. 2, instead of being a general contract.

Mr. GARRETT. I am willing to limit it to plant No. 2, or to 110,000 tons of ammonium nitrate a year, but I want to know that the 110,000 tons is going to be used in the manufacture of commercial fertilizer, and that that amount of fertilizer is going to be turned out a year during the life of this contract, and if other people go by you or adopt processes whereby they can make fertilizer cheaper you must adopt those processes.

Mr. MAYO. We say so. "to reasonably employ such improved methods."

Mr. GARRETT. But your testimony has caused considerable confusion in the minds of a great many of those who are greatly interested in the fertilizer end of the contract. While I realize the magnitude of the other end of it to the country generally, still, my mind goes back to the fertilizer side of it.

Mr. MILLER. Mr. Mayo, I want to understand this clearly. It is, as I understand it, your intention and the intention of Mr. Ford to manufacture at that plant during the life of your lease 110,000 tons of ammonium nitrate.

Mr. MAYO. Not necessarily—" or its equivalent "—that is ammonium nitrate, as such, is not used as fertilizer. It can be used, but is not best to use.

Mr. MILLER. But your process for the manufacture of ammonium nitrate will remain intact in order to comply with that provision of the offer to hold the plant in readiness to supply the Government with ammonium nitrate. Your ammonium nitrate, or its equivalent as a fertilizer element, will be converted into a certain percentage of a fertilizer compound.

Mr. MAYO. Yes, sir.

Mr. MILLER. And the amount of fertilizer compound turned out will be infinitely more than 110,000 tons.

Mr. MAYO. Yes, sir.

Mr. MILLER. I had put into this rewritten paragraph a provisions that you, in addition to supplying that proportion of a fertilizer ingredient which shall come out of the 110,000 tons of ammonium nitrate, or whatever amount it is, will manufacture commercial fertilizer, or otherwise procure the other ingredients, and mix and blend the same into a properly balanced land fertilizer, and that you would procure the other ingredients. The question that has arisen over this paragraph is in relation to the other elements. There was no obligation provided on your part to procure them.

Mr. MAYO. I think there is. It says "or other commercial fertilizers."

Mr. MILLER. We are not more than a quarter of an inch apart on this proposition.

Mr. MAYO. If you will remember, I testified that we intended to make a complete fertilizer.

Mr. MILLER. But the disarming part of your testimony, and the disarming part of Mr. Ford's statement to the Secretary of War was that he would not make it unless he can make it at a profit. The offer intends to put a binding obligation upon the company for a continuous flow of fertilizer, irrespective of cost, but you come before the committee and testify, and Mr. Ford tells the Secretary of War, that he will not continue the manufacture of fertilizer unless he can make it at a profit. That is rather disarming, and it would be rather a dangerous statement to make on the floor of the House by members of this committee favorable to Mr. Ford's offer, throughout the period of the lease, for 100 years, to have this continuous outflow of fertilizer.

Mr. MAYO. My personal opinion is that he will make many many times what he has agreed to do.

Mr. MILLER. That may be true; but we can not impart that to our colleagues on the floor of the House, as the matter stands now, in view of Mr. Ford's statement to the Secretary and your statement to the committee.

Mr. MAYO. If you will give me a copy of what you have written as your proposed amendment, I will consider it. But I am afraid I am treading on thin ice to present them to Mr. Ford, because I have already asked for so many changes.

Mr. PARKER. As far as No. 2 plant is concerned, it has been testified here that the process in use at that plant is not the cheapest way of making ammonia, that it can be made cheaper in gas works, or coke works, and that the No. 2 plant can not be run at a profit in making ammonia.

I was going to ask you two questions. One was this: As Mr. Ford is going to do research work, whether he is going to make an absolute agreement, or would be willing to add a statement that he will make the quantity of well-balanced fertilizer mentioned herein, whether he can make it at No. 2 plant or not; and, second, whether he will do that from year to year, whether he makes it at a profit or not. Those are the two questions I would like to have answered.

Mr. MAYO. He does not intend to operate No. 2 plant just at is it.

Mr. PARKER. Your present proposition is simply to operate No. 2 plant to its full capacity. You do not agree to do anything else.

Mr. MAYO. I think we do.

Mr. HULL. I would like to ask a question in regard to the matter of supervision. Of course, you expect to do the work on these dams?

Mr. MAYO. Yes, sir.

Mr. HULL. You do sot object to the Government having supervision: that is, that work should be approved by the Army engineers as you do the work?

Mr. MAYO. The work must be estirely under our supervisios, but always under their inspection and approval.

Mr. HULL. Would you be willing to do this in regard to keeping it in repair? You have set aside certain amounts; for instance, if the question came up in the committee would you be willing to strike that out and keep it in repair yourself?

Mr. MAYO. No, sir.

Mr. PARKER. I wanted to put this proposition to you. You have provided that a certain sum shall be paid to the Government for the repair, maintenance, and repair of the dam?

Mr. MAYO. Yes, sir.

Mr. PARKER. I suppose you thought it was a sufficient sum?

Mr. MAYO. Yes, sir.

Mr. PARKER. I wanted to ask whether, if that sum was waived, you to get the benefit of the dam, would agree to take over the maintenance, operation, and repair of the dam in your own hands?

Mr. MAYO. No, sir.

Mr. PARKER. You will not?

Mr. MAYO. No, sir.

Mr. PARKER. Will you agree that each of the deeds and leases which are to be made shall be conditional upon the performance of your proposition, with a proviso that the deeds or leases, respectively, may be voided at the option of the United States, when and so often as such contracts are not performed and with the ordinary proviso that the waiver of one breach shall not affect the right to enforce it for subsequent breaches? That is to say, so that each of the deeds to you shall be dependent upon this contract.

Mr. MAYO. I could not answer that.

Mr. PARKER. I will give you the matter in writing so that you may consider it.

Mr. MILLER. There is one point I want to refer to in connection with the procuring of the property at Dam No. 3 the title to which is now vested in the Alabama Power Co.

The location of the properties at Dam No. 3 on each side of the river is now owned in fee by the Alabama Power Co., which the Government will have to procure. So that Dam No. 3 can be constructed to conform with the Ford contract. The expense connected with the acquisition of that land, which will have to be done by condemnation or otherwise, is to be a part of the principal is it?

Mr. MAYO. The capital cost on which we pay 4 per cent interest.

Mr. MILLER. You think your amorization fund is sufficient to cover that also.

(Thereupon the committee adjourned to meet to-morrow, Friday, April 28, 1922, at 10.30 o'clock a. m.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Friday, April 28, 1922.

The committee met at 10.30 o'clock a. m., Hon. Julius Kahn (chairman) presiding.

EXECUTIVE SESSION.

STATEMENT OF COL. W. J. BARDEN, CORPS OF ENGINEERS, ACCOMPANIED BY MR. F. C. WILLIAMS.

The CHAIRMAN. Colonel, will you kindly give your name in full and the position you occupy?

Colonel BARDEN. Col. William J. Barden, Corps of Engineers, district engineer at Florence, Ala., in charge of the work on the Wilson Dam and the Muscle Shoals section of the Tennessee River.

The CHAIRMAN. Colonel, the committee has requested you to appear before it because there are a few matters at Muscle Shoals that we seem to have a difference about regarding the true situation. Yesterday, when we were taking up this matter, Mr. Miller, in talking to the committee suggested that the dam site for Dam No. 3 was the property of the Alabama Power Co. I think it would be very enlightening to this committee to have you make a statement on that very matter. Could you tell the committee just what the situation is down there regarding the site of Dam No. 3 which, of course, has not been begun at all. Who owns that dam site?

Colonel BARDEN. It is my understanding the Alabama Power Co. owns the abutment site.

The CHAIRMAN. Do you know about how many acres they own there?

Colonel BARDEN. Mr. Williams thinks they own about 40 acres on the north bank and he does not know just how much on the south bank.

The CHAIRMAN. But it is not any considerable quantity of land?

Colonel BARDEN. No, sir; but, presumably, it is the actual site that will be required for the location of the abutments, and therefore that land, whatever it may be, would have to be acquired by whoever was to construct the dam.

The CHAIRMAN. At Dam No. 2 I believe the records show the Government owns now something like 2,200 acres. They acquired that site from the Alabama Power Co. and paid $1 for it.

Colonel BARDEN. I think I can give you the exact figures on that, Mr. Kahn.

The CHAIRMAN. Yes; if you will.

Colonel BARDEN. We have acquired by purchase for the abutments and the camp on the north side of Wilson Dam 199.7 acres, or practically 200 acres, and on the south side we have acquired 308.86 or practically 309 acres. Of these totals that I have given you, practically 40 acres on the north side and 90 acres on the south side were acquired from the Alabama Power Co. for the $1.

The CHAIRMAN. And the other land you have acquired from individuals or from private sources.

Colonel BARDEN. Yes, sir.

The CHAIRMAN. Now, on this land where they propose to build Dam No. 3, does the Alabama Power Co. own 40 acres on one side—and how much on the other?

Colonel BARDEN. I do not know the exact amount. It is my understanding they own about 40 acres on the north side and I do not know just how much on the south side.

The CHAIRMAN. If the Government were to attempt to construct Dam No. 3, we would have to buy the land from the Alabama Power Co.?

Colonel BARDEN. Yes, sir. The land is actually owned by the Muscle Shoals Hydroelectric Power Co., but that is a subsidiary of the Alabama Power Co. It is another name for the Alabama Power Co.

The CHAIRMAN. Have you any idea how much that land is worth?

Colonel BARDEN. As farming land it is worth between $50 and $100 an acre. The average price that we have paid for the 6,000 acres of flowage land we have acquired for No. 2 has been $58. That includes whatever improvements were on the land. Of course, I assume that the Alabama Power Co. would hold this land at a much higher value than its farming value, and that would be a matter of judgment as to what the proper value would be. If it were acquired by condemnation, I suppose the jury would have to decide what their rights were worth.

The CHAIRMAN. Of course, they contend, and I presume it is true, that they sold their rights at Dam No. 2, the Wilson Dam, for $1; is that your recollection of the matter?

Colonel BARDEN. Yes, sir. They wanted $470,000 for it and the Government refused to pay that, and said that they would pay a reasonable price for it, but what the Government was willing to offer was not acceptable to the Alabama Power Co. and then it was decided at one time to condemn it. I think the Secretary of War had asked the Attorney General to institute condemnation proceedings, but some negotiations were had here in Washington between the representative of the Alabama Power Co. and the Chief of Engineers or the Secretary of War, with which I am not familiar, as a result of which they gave the land to the Government for $1. Their first offers were coupled with some restrictions as to the use of the power from this dam, but these were, of course, unacceptable to the Government, and as the land was finally transferred it was absolutely free from any restrictions. The Alabama Power Co., of course, may have some moral claim to consideration for having donated it, but that is a matter for individual opinion.

The CHAIRMAN. That was before the beginning of our entrance into the war?

Colonel BARDEN. Oh, no, sir; you mean this donation?

The CHAIRMAN. Yes.

Colonel BARDEN. Oh, no sir.

The CHAIRMAN. I would like you to fix that time. Can you give me the exact date?

Mr. MCKENZIE. May we not find out whether it happened at about the same time they entered into the contract for the construction or the extension of the Gorgas plant?

Colonel BARDEN. I can not give the exact date. I had made a synopsis from the records of our office of the negotiations with the Alabama Power Co. and they start back in June of 1918 and extend over into last year, 1921.

The CHAIRMAN. Of course, in 1918, we were in the war.

Colonel BARDEN. Yes, sir.

The CHAIRMAN. Do you think your records will disclose, when you look them up carefully, that you got this grant from the Alabama Power Co. at about that time?

Colonel BARDEN. I think the negotiations were instituted about that time. As far as the records of our office go, the first official action toward the construction of this Dam No. 2 was disclosed by the following letter of November 12, 1917, of the Secretary of War to the President, in which he says: "Investigations are in progress looking to the acquisition of lands at Muscle Shoals, Tennessee River, for the purpose of a hydroelectric-nitrate plant for Federal use and the district engineer reports that the sum of $10,000 is needed for expenses incident to inquiries and field examinations."

The CHAIRMAN. Even on November 12, 1917, we had already entered the World War.

Colonel BARDEN. Yes, sir. Nothing was ever done by the Government toward the acquisition of these sites prior to the entry of this country into the war. I do not think there is any question about that.

The CHAIRMAN. You have not any condition of that kind existing at this time with respect to Dam No. 3?

Colonel BARDEN. Absolutely none.

The CHAIRMAN. And the Alabama Power Co. would probably charge a considerable sum for the sale of its land at Dam No. 3 in case the Government were to undertake the building of that dam?

Colonel BARDEN. I think undoubtedly so; yes, sir.

The CHAIRMAN. Can you approximate, or have you any means of knowing, about what the Alabama Power Co. would ask for that land?

Colonel BARDEN. No, sir; I have no way of estimating that at all.

The CHAIRMAN. But you say that such farm land is worth about $50 an acre down there?

Colonel BARDEN. Yes, sir.

The CHAIRMAN. And they have 40 acres on one side and you do not know the amount of land they have on the other side of the river?

Colonel BARDEN. They would undoubtedly want very much more than $50 or $100 an acre, and I think probably a court would award them a bigger value than that.

The CHAIRMAN. How have the courts down there been acting with respect to condemnation proceedings that were tried in the courts?

Colonel BARDEN. I could not answer that question.

Mr. WILLIAMS. There has been one case completed, the case of Cox Island, which is good farming land in the river, and it will be entirely submerged. There were 206.9 acres in this island. We thought that $10,000 would be a fair price for the land, which is at the rate of about $49 an acre. Due to the fact that there was some doubt as to the ownership the island had to be condemned. It was really not a true test of condemnation because it was a friendly condemnation, and the jury allowed the $10,000 award, which was the price we had set upon the land.

Colonel BARDEN. That, of course, was a different case. The value of the land at the abutment site for Dam No. 3 is based upon the possible use of those sites for the construction of a dam for the development of a large amount of water power. How a jury would act on a case of that kind, I do not know.

Mr. STOLL. It is land that would be used for manufacturing sites and not for industrial purposes.

Colonel BARDEN. Yes, sir; an entirely different purpose.

Mr. STOLL. When did the Alabama Power Co. acquire this site. Was it before the Government selected it or before the Government made its borings, or do you know?

Colonel BARDEN. I think so. If the committee will bear with me a minute, I would like to explain to you a little about the history of this matter.

The CHAIRMAN. Yes; naturally, the purpose of going into this matter is that Mr. Ford demands that we develop Dam No. 3, and he is willing to pay what his engineers tell him will be necessary for the construction of the dam, and here are some other things that in my opinion will be necessary. If we carry out his proposition, the Government of the United States will have to furnish this land, and I want to avoid, so far as I can, any extra expenses to the United States; therefore, I want to see whether Mr. Ford will be willing to bear the expense of purchasing the land.

Colonel BARDEN. I would like to explain to the committee that the question of the development of this section for the combined purposes of power and navi-

gation has been under consideration for many years, and has been the subject of numerous investigations and reports both by private interests and the engineer department under instructions from Congress. The first official investigation was in accordance with the provision in the rivers and harbors act of March 2, 1907 that—

"The Secretary of War may appoint a board of engineers whose duty it shall be to examine the present condition of the United States Canal and the Tennessee River from the head of Elk River Shoals to the Florence railroad bridge * * * with a view to permitting the improvement of the above-described stretch of said river by private or corporate agency in conjunction with the development of water power by means of not more than three locks and dams; and the said board may examine any plans presented by such agency and shall report whether the same, if constructed, can, without injury to navigation, or with advantage thereto, be used to develop water power, and what portion, if any, of the expense of the work should be borne by the United States."

The width of the river made very long and consequently expensive dams necessary, so that private interests were apparently unable to finance the entire work or even such portions of it as were necessary to meet what the engineer department felt it could recommend as a proper expenditure for navigation.

In other words, back in 1907, Congress authorized an investigation to see if this section of the river could be improved for the combined purposes of power and navigation, a power company or a private concern to pay the amount chargeable to the power development and the United States to pay the part chargeable to navigation. Then there were numerous investigations following this first one and the matter seemed in a fair way for settlement about the time of the passage of the national defense act in 1916. An offer had been received from the Muscle Shoals Hydroelectric Power Co. in 1913 in accordance with advertisements issued under instructions of the Committee on Rivers and Harbors, House of Representatives. A favorable report had been made on this proposition by the Engineer Department in 1914, which was published in Committee Document No. 20, House of Representatives, Sixty-third Congress, second session. This report, however, suggested additional borings and these were made and a further report submitted as directed by the rivers and harbors act of 1915. This report was made in March, 1916, and published in House Document 1262, Sixty-fourth Congress, first session.

The project embraced a lock and low dam (No. 1) just above the Florence bridge for navigation only and two high dams (Nos. 2 and 3) with locks for navigation and power.

The total cost of the locks, dams, and power-house substructures was estimated at $19,000,000 (p. 35) and of the power-house superstructures and hydroelectric equipment, which was to be paid for entirely by the company, $15,327,000 (p. 164), a total of $34,327,000.

(NOTE.—The present estimates for the complete work are Lock and Dam No. 1, $1,400,000; No. 2, $45,500,000; No. 3, $25,000,000, or a total of $71,900,000, which, in view of the increased costs since the date of original estimate compares favorably therewith.)

The company was to contribute $3,000,000 in cash toward the cost of the first item and to make certain stated annual payments sufficient to amortize at 3 per cent in 100 years the sum of $7,128,000, which left as the cost to the United States, for the combined works, $8,872,000. This latter figure was approximately that which had been determined by the Board of Engineers which had investigated the matter as representing the value of the improvement to navigation. (H. R. Com. Doc. 20, 63d Cong., 2d sess.)

That is the basis of the present plan.

The CHAIRMAN. That report is referred to in various papers that we have before us.

Colonel BARDEN. Yes, sir. It was approximately the cost of extending the navigation from the lower end of the present canal down to Florence and from the upper end of the canal to Flint River, this section being that which would be covered by the combined power and navigation scheme (about 80 miles).

(NOTE.—But this would have provided for a 5-foot depth only as against the 6-foot depth and much better channel that would be afforded by the power dams.)

The company was also to pay to the United States after a certain amount of installation had been completed 35 cents per horsepower per year of installed capacity (p. 41). This amount the district engineer, Major Burgess (p. 37),

estimated would amortize something between $1,778,000 and $5,500,000, thus further decreasing the ultimate cost to the United States, so that the total would be between $3,350,000 and $7,100,000.

In forwarding the report, the Board of Engineers for Rivers and Harbors concurred with the favorable report of the district engineer, but suggested, in view of the provisions of section 124 of the national defense act, which was then pending that action be suspended, as it might be decided that this Muscle Shoals power should be utilized by the United States for a nitrate plant. The chief engineers concurred in this recommendation.

Subsequent developments are now quite generally known. The national defense act was passed with the $20,000,000 item for a nitrate plant. A commission or commissions were appointed to investigate the subject, but no definite action was taken until this country entered the war. Nitrate plant No. 1 was then established at Sheffield and later No. 2. It is understood that no money from the national defense act was used at No. 2; all the expenditures there and most of those at No. 1 having come from war appropriations. The construction of this dam (No. 2 or Wilson Dam) was ordered by the President on February 23, 1918, under the authority contained in this provision of the national defense act, presumably to furnish cheaper power for nitrate plant No. 2. All the money spent here is from that fund. We have had a total allotment of $17,159,610.42, of which $16,890,507.46 has been expended or obligated, leaving an available balance on April 1 of $269,102.96.

Now, that report contained rather complete plans and complete estimates, and during this period of years in which these negotiations had been in progress, the Alabama Power Co. or the Muscle Shoals Hydroelectric Power Co. had acquired the sites for the abutments of both dams, and some flowage rights, and the citizens of Sheffield and Florence had interested themselves in the matter and had secured options on a large part of the land required for flowage for both dams, No. 2 and No. 3. Those options were taken advantage of in the acquisition of the lands for No. 2, but for No. 3 they have all expired. I think that explains how it is that the Alabama Power Co. had acquired this land. They had been in negotiations with the Government for a combined development for power and navigation for a number of years starting back in 1907.

The CHAIRMAN. And they acquired them before we got into the war?

Colonel BARDEN. Oh, yes, sir.

Mr. STOLL. But the Alabama Power Co. made no borings themselves and just came in after the Government had done that and had found a site, and then they acquired land adjoining you.

Colonel BARDEN. The preliminary investigations or negotiations were made jointly. These borings that the United States made were made from a fund of $150,000 allotted for that specific purpose, but it was with a view to a development in which a company and the United States should jointly share the expense. This report of 1916 provides that the United State shall construct the dam, the locks and the foundations of the power house, and that the company, at its own expense, shall build the power-house superstructures and install the machinery, and then pay back in yearly sums an amount which in the course of 100 years would have reduced the ultimate cost of the work to the United States to some $3,350,000. The scheme as proposed was a combination scheme by which the Government would stand part of the expense and the private company would stand the remainder, and these negotiations at that time were all conducted in good faith on the part of both the Government agents and the company. It was authorized by Congress.

The CHAIRMAN. When I asked you the questions I did, a suggestion was made about the Alabama Power Co. having acquired some rights to build at its own plant at the Warrior River a steam power plant and a transmission line was run from there to Muscle Shoals; do you remember what date that contract with the Government was entered into?

Colonel BARDEN. No, sir; that was an Ordnance Department matter.

The CHAIRMAN. I think that is in the record, anyhow, but I wanted to know whether you could remember that offhand.

Colonel BARDEN. No, sir; I do not know that.

The CHAIRMAN. At any rate; so far as you know, the matter of a contract with the Alabama Power Co. was entered into by the officers of the Ordnance Department and was completed by them.

Colonel BARDEN. Yes, sir.

The CHAIRMAN. And the Engineer officers had nothing to do with that.

Colonel BARDEN. No, sir; the Engineer Department has had nothing to do with anything except the construction of the dam proper.

The CHAIRMAN. The dam at No. 2 is now about 30 per cent completed?

Colonel BARDEN. About one-third completed; yes, sir.

The CHAIRMAN. That is what the record shows.

Colonel BARDEN. It is more than one-third completed so far as cost goes, but so far as the construction work goes, it is one-third completed. Of course, we have all our plant and machinery and apparatus and appliances of every kind, so that when I say the work is one-third completed, I do not mean we are going to have to have twice as much money as we have already put in to complete it.

The CHAIRMAN. I think the record shows that about $50,000,000 will be required for Dam No. 3 and for the completion of Dam No. 2, or about $25,000,000 at each place. You have used now $17,000,000 at Dam No. 2.

Colonel BARDEN. Yes, sir.

The CHAIRMAN. If you use another $25,000,000 there, it will be considerably more than what you, yourself, estimate is necessary.

Colonel BARDEN. Three times 17 is 51, and our estimate of the cost of completion of No. 2 is not to exceed $45,000,000, including what has already been spent.

The CHAIRMAN. I think the estimate before this committee at the present time is that it will take about $25,000,000 more, which would mean a total of about $42,000,000. Is that the total amount you figured on?

Colonel BARDEN. That is the estimate that the Chief of Engineers submitted.

Mr. JAMES. What is the difference between the figures submitted by the Chief of Engineers to us and the figures submitted by you to him?

Colonel BARDEN. My estimate of the cost of completing Dam No. 2 for the full installation of 18 units was $28,387,763. Those estimates were made in the summer (July) of 1921, and the Chief of Engineers, in submitting the matter to Congress, said he thought $25,000,000 would be ample. So far as our district office is concerned, we would not recommend, at this time, the installation of 18 units. We do not consider that would be justifiable under present circumstances. We would propose that 8 units only be installed for the development of 240,000 horsepower and that the foundations for the additional 10 units be constructed and all arrangements made so that they could be put in whenever the conditions of the market demanded it, and our estimate of the cost of putting in the 8 units and making provision for the ultimate installation of the 18 is $23,177,000.

The CHAIRMAN. So you are a little below the $25,000,000.

Colonel BARDEN. If I applied the same rate of decrease that the Chief of Engineers applied to my $28,387,763, I would cut that $23,177,000 to about $20,400,000.

Mr. JAMES. How much did the United States offer the Alabama Power Co. for that site at Dam No. 2?

Colonel BARDEN. I think they offered them only about $100 an acre.

Mr. JAMES. That would amount to how much?

Colonel BARDEN. There were about 120 acres, which would be about $12,000.

Mr. JAMES. And they claimed it was worth $500,000?

Colonel BARDEN. $470,000.

Mr. JAMES. And in the first deed they offered to the Secretary of War they only gave it to the Government for war purposes, and if it was not used for war purposes then it was to revert to them?

Colonel BARDEN. Yes, sir.

Mr. MCKENZIE. Colonel, this question may have been asked you while I was temporarily out of the room, but there has been some discussion in this committee about one Hugh L. Cooper, consulting engineer, and it has been stated before this committee that he was receiving $1 a year, and it has also been stated that the Government is paying his concern or his company $10,000 a month as supervising architect to teach you gentlemen, who hold commissions in the Corps of Engineers of the United States Army, just how to proceed down there. Now, we would like to know what the facts are about that.

Colonel BARDEN. This work is being carried on under what amounts to the immediate supervision of the Chief of Engineers. He has engaged consulting engineers, the firm of Hugh L. Cooper & Co., of New York, and made a contract with them dated October 1, 1920, by mhich they furnish all the plans and inspect the work and are responsible for the stability of the dam, and the actual work is done by the district engineer.

The CHAIRMAN. Who happens to be you at the present time, does it not?

Colonel BARDEN. Yes, sir. Now, as to the reasons which impelled the Chief of Engineers to make that arrangement, I would prefer very much that the committee should ask him. The contract is here and I know of no possible objection to letting the committee see that.

Mr. MCKENZIE. Well, what is the consideration named in the contract.

Colonel BARDEN. The consideration named in the contract is the actual expenses of all his employees plus 60 per cent overhead.

Mr. STOLL. And that amounts to about $10,000 a month?

Colonel BARDEN. At the present time; yes, sir.

Mr. GARRETT. How much?

Colonel BARDEN. About $10,000 a month at the present time.

Mr. JAMES. How much does Mr. Cooper get for any time that he does work for them—$400 a day?

Colonel BARDEN. No, sir; only $40.

Mr. JAMES. And that is for himself, personally?

Mr. MCKENZIE. Colonel, you made one statement there that interested me. You said that they are to be held responsible for the stability of the dam. Is there any bond put up or anything of that sort? What does the word "stability" mean in that connection?

Colonel BARDEN. It will only take me a minute or two to read this contract, if you would like to hear it, or the pertinent parts of it.

Mr. MILLER. I think it would be well to have the contract put in the record.

Colonel BARDEN. It reads:

Contract for engineering services on Wilson Dam project between Major General Lansing H. Beach, for United States of America, and Hugh L. Cooper & Co., of New York City, October 1, 1920.

NEW YORK, N. Y., *October 1, 1920.*

1. Whereas the contracting officer designated below desires to definitely establish responsibility in the building of the Wilson Dam and in carrying out this desire has divided the work into two separate divisions—an engineering division and a construction division—each reporting to and subject to the orders of the contracting officer, and

Whereas the contracting officer has decided, subject to paragraph 11 hereof, to place all matters in the engineering division in charge of the consulting engineers designated below: Now, therefore,

These articles of agreement made and entered into this first day of October, nineteen hundred and twenty, between Major General Lansing H. Beach, Chief of Engineers, U. S. Army, hereinafter designated as the contracting officer, representing the United States of America, of the first part, and Hugh L. Cooper & Company, a partnership composed of Hugh L. Cooper, Frances G. Cooper, Dexter P. Cooper and Royal D. Edsell, of New York City, hereinafter designated as the consulting engineers, of the second part;

Witness, that the said parties do hereby covenant and agree to and with each other as follows:

2. The consulting engineers, in consideration of their interest in the Government project for development of water power from, and navigation on, the Tennessee River at Muscle Shoals, Alabama, the project being known and designated as the Wilson Dam, and of their desire to assist in the successful completion of this project, and in consideration of the payments for the services to be rendered by the consulting engineers, more particularly specified in paragraph 3, have agreed to supply the contracting officer with their best services, as follows:

3. The consulting engineers will serve and report and be responsible to the contracting officer for the following engineering services, and as such will—

(*a*) Make all designs and prepare such general and detail plans in advance of construction needs as are necessary for the completed project, including the main dam, the power house and its hydraulic and electrical contents, and the lock system complete, ready for commercial operation.

When and as the above plans are completed, the original tracings of the same will be submitted to the contracting officer for his approval, and when so approved, the tracings will become the property of the United States, and when so approved Vandyke prints will be supplied by the contracting officer to the consulting engineers for their records and use.

(*b*) Prepare for the approval of the contracting officer complete specifications for all of the work specified in the foregoing subsection (a).

(c) Examine and pass upon the acceptability of all foundations in the project and specify the character of any strengthening the foundations may require, and supervise for the contracting officer the necessary work for the specified strengthening.

(d) Be responsible to the contracting officer for all inspection relating to the finished project of whatever character. This subsection will require the consulting engineers to inspect and accept all materials entering into the finished work, all foundations, and the quality and sufficiency of all workmanship entering into the permanent structures of the project.

(e) Make reports at ten-day intervals to the contracting officer concerning the acceptability of the work accomplished by the construction division during the period reported upon.

4. The consulting engineers will, during the existence of this contract, prepare such reports and perform such work relating to this project as the contracting officer may from time to time designate.

5. All instructions issued to the construction division by the consulting engineers will, as far as practicable, be in writing, and all foundation acceptance will be in writing, and all instructions issued by the consulting engineers will be, as the representative of the contracting officer and as such will be followed with reasonable promptness by the construction division.

6. The consulting engineers will be represented on the project by a direct representative designated as "resident engineer," and who will sign all communications from his office , "Hugh L. Cooper & Co., by——— ——— Resident Engineer."

(a) The resident engineer will be the engineering division representative at the Wilson Dam site of the contracting officer and the consulting engineers.

(b) The duties of the resident engineer will be those imposed by this contract for execution at the Wilson Dam site, and the resident engineer will be supplied from time to time by the consulting engineers, with such assistants at current rates as the consulting engineers (subject to the approval of the contracting officer) deem necessary for the protection of the resonsibility assumed by the consulting engineers herein.

7. The contracting officer will supply, for the free use of the consulting engineers at the Wilson Dam site, such office space and such independent attending facilities, automobile service, including garage, as is necessary for the best carying on of the work herein called for. The contracting officer will also supply, for the free use of the resident engineer and two principal assistants, if practicable, three Government living houses at the Wilson Dam site, Alabama, of such grade as the contracting officer deems proper.

8. Any differences between the engineering and construction divisions will be decided solely by the contracting officer whose decisions will be final and binding upon both divisions.

9. For the services of the consulting engineers, as specified above, the contracting officer will reimburse the consulting engineers—

(a) For the time of Mr. Hugh L. Cooper or any representative designated by him for special examinations or conferences at the Wilson Dam site, Alabama, Washington, D. C., or elsewhere, a fee of $40 per day, which will include all traveling expenses of whatsoever kind, incident to the services herein specified.

(b) The actual cost to the consulting engineers of all salaries of all the employees of the consulting engineers actually performing work called for by this contract, plus an overhead of 60 per cent, with no allowance for profit. The foregoing rate and method of charge is current with the consulting engineers in their private practice for determining the actual cost of services rendered.

(c) The contracting officer will reimburse the consulting engineers for all traveling and other expenses (exclusive of (a) and overhead (b) properly acruing and disbursed by the consulting engineers because of the requirements of this contract. All reimbursements shall be supported by such evidence as will satisfy the requirements of Army Regulations and the Auditor for the War Department, of which the contracting officer shall be judge.

10. Bills in proper form for all of the payments to be made under subsections (a), (b), and (c) will be rendered monthly and be paid promptly when aproved by the contracting officer.

11. It is mutually agreed that this contract may be terminated by either party thereto by the issuance of a 30-day written notice to that effect.

12. No Member of or Delegate to Congress, or resident commissioner, nor any person belonging to or employed in the military service of the United States is, or shall be, admitted to any share or part of this contract, or to any benefit which may arise herefrom; but, under the provisions of section 116 of the act of Congress approved March 4, 1909 (35 Stat. 1109), this stipulation, so far as it relates to Members of or Delegates to Congress or resident commissioners, shall not extend or be construed to extend to any contract made with an incorporated company for its general benefit.

13. This contract supersedes and renders ineffective from and after October 1st, 1920, the contract entered into on May 19th, 1920, between Major General Lansing H. Beach and Hugh L. Cooper & Company.

In witness whereof the parties aforesaid have hereunto placed their signatures the date first hereinbefore written and on duplicate copies hereof.

LANSING H. BEACH,
Major General, Chief of Engineers.
HUGH L. COOPER & Co.,
By HUGH L. COOPER,
One of the firm.

Witnesses:
THOS. E. JANSEN.
RUTH E. SMITH.

Mr. MCKENZIE. I would like to inquire, Colonel, whether this contract was entered into by the Corps of Engineers on the theory that the officers in the Corps of Engineers of the United States Army are not competent to handle this proposition and that they had to employ outside assistance to aid them in this work.

Colonel BARDEN. I hope the committee will excuse me from answering that question.

Mr. MCKENZIE. Of course, if that question was answered in the affirmative, it certainly would cause me a great deal of regret, because I have always had very great admiration for the ability of the officers of the Corps of Engineers of the United States Army; and I can not refrain from saying that for one, if I had my way about it, I think that contract would be terminated within 30 days and the Corps of Engineers would be put in full charge.

Colonel BARDEN. Of course, I think that any information concerning that should properly come from the Chief of Engineers, because I am merely a subordinate, and I could not attempt to state his reasons for making it.

Mr. MCKENZIE. I appreciate that, of course.

The CHAIRMAN. Let me ask you this question: Has the 30 days' notice called for by the contract been put into effect?

Colonel BARDEN. Not to my knowledge.

The CHAIRMAN. Then these gentlemen are still consulting engineers?

Colonel BARDEN. Yes, sir; they are still working on the plans. The plans are not yet completed. They have a ecrtain number of men in their New York office and also a certain number of men at the dam. Those men at the dam are men who were formerly employed by the district engineer before this contract was made. When the contract was made they were turned over to the consulting engineer and since then have been working under his direction.

The CHAIRMAN. Were their salaries increased when they began to work for private individuals?

Colonel BARDEN. Some of them were increased.

The CHAIRMAN. They were increased?

Colonel BARDEN. Yes, sir.

The CHAIRMAN. Had these men been working on the plans under the district engineer, and were they giving thorough satisfaction?

Colonel BARDEN. Before this contract was made?

The CHAIRMAN. Yes.

Colonel BARDEN. Yes, sir.

The CHAIRMAN. And then immediately the contract was entered into they got an increase of salary?

Colonel BARDEN. Yes, sir. Some of them, not all of them.

The CHAIRMAN. Those that were given any increase got it immediately after the contract was signed?

Colonel BARDEN. Yes, sir. I might say for the information of the committee that prior to the entrance of the firm of Hugh L. Cooper & Co. into this con-

tract, the district engineer had employed as a consulting engineer, a consulting engineer to him, Mr. O. G. Thurlow, who is the engineer of the Alabama Power Co. Mr. Thurlow had been engaged on this work for a number of years and some of the plans that were prepared and presented in this House Document No. 1262 were the result of his assistance, and my predecessor had employed him as a consulting engineer on the power house part of the work, that being a part of the work which is somewhat outside of the regular work of the Engineer Corps.

The CHAIRMAN. How was it that he was relieved from his duty as consulting engineer and this contract with Mr. Cooper, as consulting engineer, made?

Colonel BARDEN. That was all done by the Chief of Engineers, Mr. Kahn, and I could not tell you why.

Mr. JAMES. What is your entire pay roll per month down there now?

Colonel BARDEN. My own pay roll is between $15,000 and $16,000 and about $10,000 for the consulting engineer.

Mr. JAMES. Mr. Cooper's firm?

Colonel BARDEN. Yes, sir.

Mr. JAMES. I had supposed until I went down there that Mr. Cooper was only getting a dollar a year. Did you read the testimony of Mr. Cooper before our committee?

Colonel BARDEN. I read that; yes, sir. I am unable to explain why he could make such a statement to the committee.

Mr. JAMES. That is not the way you understand it?

Colonel BARDEN. That would not be my understanding.

Mr. JAMES. I was the one who brought the matter up before the committee because I said to a gentleman down there that Mr. Cooper was getting a dollar a year, and I was told that your office was very much surprised at Mr. Cooper's statement and could not understand it.

Colonel BARDEN. That is correct.

Mr. GARRETT. Is there any bond on file with your office or any other department down there of Hugh L. Cooper & Co. to secure the Government as to their judgment and responsibility in constructing this dam, in the event it should prove to be unsound?

Colonel BARDEN. No, sir.

Mr. GARRETT. I want to go back to the question of the dam site at No. 3 and the lands owned by the Alabama Power Co. How much frontage would the 40 acres include at Dam No. 3 owned by the Alabama Power Co., approximatcly?

Mr. WILLIAMS. At Dam No. 3 I am not sure about the 40 acres because it appears from the map that there must be nearly 140 acres. There is about 2700 feet of frontage on the north bank owned by the Alabama Power Co. and on the south bank about 2,400 feet of frontage. These figures are approximate only.

NOTE.—The Muscle Shoals Hydroelectric Power Co. owns about 146 acres at the north abutment and 24 acres at the south abutment of Dam No. 3.

Mr. GARRETT. Could the Government move either above or below that frontage and construct a dam?

Colonel BARDEN. Not very well; no, sir.

Mr. GARRETT. Then they have acquired the most desirable frontage for the construction of Dam No. 3?

Colonel BARDEN. Yes, sir.

Mr. GARRETT. And the Government could not construct it at a different place and get the same results.

Colonel BARDEN. No, sir. That is the best place for the location of the dam. It is the narrowest part of the river in that vicinity.

Mr. GARRETT. And it would be more expensive to construct it at another point than it would be to construct the dam at that point.

Colonel BARDEN. Yes, sir; very much more expensive.

Mr. MORIN. Colonel, as I entered the room this morning, I think you were discussing with Mr. McKenzie the question of dividing this matter into two separate propositions and giving the power rights or the dam properties to one concern and the plants to another. What is your judgment about that? Do you think that could be done with advantage to the Government?

Colonel BARDEN. My idea about that, Mr. Morin, is this: To attempt to consider the offer of Mr. Ford, which includes all of the properties as a whole, it seems to me it is very difficult to reach a fair conclusion as to what benefits

the Government will derive and what benefits Mr. Ford will derive. It seems to me, in your consideration of this matter, if you could separate the dam from the nitrate plants and say that so far as the dam is concerned such an arrangement would be equitable to the Government and to the private individual, Mr. Ford or anybody else, that that would not be a difficult thing to do. You could treat that in accordance with the principles laid down in the Federal water power act which provides for just such cases. Then if you can decide upon what would be a fair and equitable arrangement to both parties, so far as the dam alone is concerned, you could take the balance and see if you could make an equitable arrangement for both parties so far as they were concerned, independently of the dam. Now, if it were possible to do that, it seems to me it would clarify the situation and enable you to arrive at perhaps a more nearly correct judgment of what the real equities are.

Mr. MORIN. And you believe that could be done?

Colonel BARDEN. I believe you can take the dam alone and say what would be a fair arrangement for the Government and any individual to make as to the disposition of the dam.

Mr. MORIN. Would you mind stating just what your idea would be and how that could be done?

Colonel BARDEN. I think it could be done in strict accordance with the Federal water power act, and the United States could say to Mr. Smith, "If you want to take this dam under the terms of the Federal water power act, you can go ahead and finish it at your own expense and pay us 4 per cent on the money we have already put in." The question of how much the Government should pay for the locks or for the navigation feature of it, if anything, is one that would require determination, but that is just exactly one of the questions that the Federal Water Power Commission is directed, under the terms of the Federal water power act, to determine. That act specifically places that duty upon the commission in section 11, which says:

"That if the dam or other project works are to be constructed across, along, or in any of the navigable waters of the United States, the commission may, insofar as it deems the same reasonably necessary to promote the present and future needs of navigation and consistent with a reasonable investment cost to the licensee, include in the license any one or more of the following provisions or requirements," and then it goes on to say that the licensee shall be required to put in the locks and dams at his own expense. In other words, it makes it the duty of the commission to determine whether the locks should be constructed at the entire expense of the licensee or whether the Government should share the expense, determined by whether that is consistent with a reasonable investment cost to the licensee. The commission makes an estimate of the value of this water power to the licensee and then, based upon that value, decides whether it shall require him to put in the locks at his own expense or whether the Government should share some of the expense.

Mr. MORIN. And it is your idea that the Government could then make a separate contract with the same party or with different parties with reference to the nitrate plants.

Colonel BARDEN. Yes, sir.

Mr. MORIN. And you think it would be better for the Government to do that?

Colonel BARDEN. Even if they make it with the same party.

Mr. MORIN. And whether the contract was made with the same party or with different parties, you think it would be best to separate the two propositions.

Colonel BARDEN. That is my idea of it. I am just giving you my individual opinion.

Mr. MORIN. Your statement sounded very logical to me and that is why I wanted your statement in the record.

Colonel BARDEN. Along that general line, if I may be permitted, I would like to say——

Mr. MORIN. I would like to know just what your ideas are on the subject.

Colonel BARDEN. So far as my personal opinion is concerned, the Government could well afford to spend the money necessary to complete the Wilson Dam and it would receive from the sale of the power a sum which would amply recompense it for the additional money required to complete, and in course of time, as the power became more valuable. I feel it would also get a return on the $17,000,000 already in.

Mr. MORIN. You think then it would be of advantage to the Government to complete the Wilson Dam.

Colonel BARDEN. Unless an arrangement with some private party that is entirely satisfactory to Congress could be made, that is my idea. Of course, if a perfectly satisfactory arrangement could be made with Mr. Ford or anybody else to take the whole thing, all right; but if not, I am interested in seeing this work go on now. Unless we get some money immediately, we are going to lose a full working season and in dollars and cents that means practically $400,000. I am exceedingly anxious that we should be given this money to go ahead with the work without prejudicing, in any way, the action that Congress may desire to take upon any of the offers that are before it.

Mr. MORIN. If we should dispose of the water-power rights to one concern—Mr. Ford or the Alabama Power Co., or some other concern—do you believe we could lease or dispose of the nitrate plants or lease the right to operate the nitrate plants to some other parties?

Colonel BARDEN. I would not say that that could be done, but my suggestion is that if you determine upon what is an equitable arrangement for the dam, it will enable you to more easily reach a conclusion in your own minds as to the value of any offers that you may have received for the plant.

Mr. MORIN. And the best way would be to separate the two propositions.

Colonel BARDEN. At least, in your consideration of the matter.

Mr. MORIN. Even if we should finally turn it over to one party, for instance, Mr. Ford.

Colonel BARDEN. Yes. In other words, you can analyze Mr. Ford's offer, for instance, more readily in that way than any other.

Mr. MCKENZIE. Would there not be one almost dead certainty in connection with an arrangement of that sort, and that is, that so far as the manufacture of fertilizer is concerned, we might as well forget it.

Colonel BARDEN. I am not an expert on this nitrate plant feature. I do not know anything about it except what I have acquired by reading the testimony and hearing people speak about it. Now, they say, as I understand it, they have got to have very cheap power in order to make ammonium sulphate or ammonium nitrate at Plant No. 2 in competition with other sources of supply, and it is a question in my mind as to whether the power from this dam or from these dams would really be available at as low a rate as these experts think necessary.

Of course, economies could be effected in other ways. The ammonium sulphate is only one ingredient of the complete fertilizer, and even if that one ingredient costs a little more than the market price, it might be possible for Mr. Ford, by economies in other branches or in other ways, to still sell the complete fertilizer in competition with the market price. But the actual power itself, it seems to me, would be worth more for other purposes than the figure they say is necessary for the successful operation of the nitrate plant.

Mr. MILLER. Colonel, your official position is district engineer?

Colonel BARDEN. Yes, sir.

Mr. MILLER. Of the Tennessee River district?

Colonel BARDEN. No; I am in charge only of the Muscle Shoals section of the Tennessee River including the dam.

Mr. MILLER. General Beach, the present Chief of Engineers, was at one time district engineer of the Tennessee River section, was he not?

Colonel BARDEN. He was the division engineer, which is one grade higher than district engineer.

Mr. MILLER. How long since was General Beach division engineer down there? Do you recall that?

Colonel BARDEN. I think he was made Chief of Engineers in the early part of 1920.

Mr. MILLER. Was he at that time division engineer of that section, when he was made Chief of Engineers?

Colonel BARDEN. Yes.

Mr. MILLER. Then he comes to the position of Chief of Engineers fresh from that locality?

Colonel BARDEN. Yes, sir.

Mr. MILLER. Now, seemingly a number of years ago the Alabama Power Co. through the instrumentality of a subsidiary corporation, acquired the lands along the shore on either side at points most desirable to construct dams, both at Muscle Shoals and at the proposed Dam No. 3.

Colonel BARDEN. Yes, sir.

Mr. MILLER. They deeded to the Government their shore lands at Dam No. 2 but still retained their lands at Dam No. 3.

Colonel BARDEN. Yes, sir.

Mr. MILLER. Now you say they worked through the instrumentality of another corporation called the Muscle Shoals Development Co.?

Colonel BARDEN. The Muscle Shoals Hydroelectric Power Co.

Mr. MILLER. Their idea evidently was to acquire these so-called key positions to either utilize them themselves or keep out competitors.

Colonel BARDEN. Oh, yes, sir; I think it is only fair to say that they really expected to use them themselves.

Mr. MILLER. Well, they never did.

Colonel BARDEN. The Engineer Department is on record as recommending in 1916 that the arrangement proposed should be adopted in principle. At the time this report was submitted, the national defense act was under consideration by Congress and contained a provision for the construction of nitrate plants, so the Chief of Engineers, in forwarding the report to Congress, recommended, in view of the possibility that the nitrate plant provided or to be provided for under this act might be located at Muscle Shoals, that action on the proposed contract with the Muscle Shoals Hydroelectric Co. be suspended temporarily.

Mr. MILLER. Anyway, the rights of the Muscle Shoals Hydroelectric Power Co' at dam site No. 2 are now held by the United States Government.

Colonel BARDEN. Yes, sir.

Mr. MILLER. And they have no rights there.

Colonel BARDEN. No, sir.

Mr. MILLER. At dam site No. 3 there was certain preliminary work in the way of borings, etc., put down there by the United States Government, testing the foundation or the kind of substrata there, and those borings are all opposite and across stream and on both banks of the property of the Alabama Power Co. or abutting the property of the Alabama Power Co.

Colonel BARDEN. Yes, sir.

Mr. MILLER. And you say it would be rather difficult to go either upstream or downstream beyond the property of the Alabama Power Co. so held and secure proper anchorages for dams.

Colonel BARDEN. Yes, sir.

Mr. MILLER. That clearly puts the United States Government up against the proposition of acquiring these lands in the event the United States Government intends to go ahead and construct Dam No. 3.

Colonel BARDEN. Yes, sir.

Mr. MILLER. Or at least acquire sufficient rights or anchorage facilities on the shore lands.

Colonel BARDEN. Yes, sir.

Mr. MILLER. Those lands, in all probability, were acquired by the Muscle Shoals Hydroelectric Co. for the special purpose of dam anchorages.

Colonel BARDEN. Yes, sir.

Mr. MILLER. And their principal value is for that purpose and use.

Colonel BARDEN. Yes, sir.

Mr. MILLER. And there being no suitable place either above stream or downstream from the property owned by the Muscle Shoals Hydroelectric Co., it would probably turn out to be rather valuable property for that especial use, would it not?

Colonel BARDEN. Yes, sir.

Mr. MILLER. And being property highly valuable for that specialized use, the value of the land would be based upon that prospective use alone.

Colonel BARDEN. I would think so; yes, sir.

Mr. MILLER. Now, I want to turn to another little angle of this matter. In paragraph No. 2, of Mr. Ford's offer, are these words, on the sixth line, "including lands for railway and terminal connections." What lands and terminal connections has the Government there at Dam No. 2, within the meaning of this language in Mr. Ford's offer?

Colonel BARDEN. We have a railroad line connecting through the nitrate plant No. 2 with the Southern Railroad at Sheffield. That comes over to our south abutment. That is all on land now owned by the United States. This railroad goes on across our cofferdam and construction bridge, and goes down the north bank of the river and connects with our unloading dock for sand and gravel at the Florence Railroad bridge, and, also, with the Louisville and Nashville and Southern Railroad at East Florence. Practically all of that trackage is on leased

land. There will be no necessity for the permanent maintenance of this track on the north bank or the track across the river, but the track on the south bank to the power house will, presumably, have to be maintained permanently for use in taking equipment of various kinds to the power house. That track now, as I say, is all on land owned by the Government. I would assume that that would be all that would be necessary to furnish Mr. Ford under this offer. Whether the terms of the offer, as you have read them, would require that the Government should acquire the land on which this track on the north side of the river is constructed or not, is a legal matter about which you would know better than I.

Mr. McKENZIE. That is a utility track which is necessary so long as the construction work is going on.

Colonel BARDEN. That is all; yes, sir.

The CHAIRMAN. Who is the owner of the land that we lease at the present time?

Colonel BARDEN. Oh, there are a large number of individual owners.

The CHAIRMAN. Small tracts, as a rule.

Colonel BARDEN. Yes, sir.

The CHAIRMAN. Do you pay very much for the land?

Colonel BARDEN. No, sir; our total payments for leased land, including the land for the camp site and quarry and the railroad tracks, amounted to $6,000 a year. Those sites are for the railroad rights of way, the yards and the tracks and a portion of the camp, and for the quarry.

The CHAIRMAN. How long does that lease run?

Colonel BARDEN. There are 63 individual leases and most of them run for the term of the construction of the dam. They can all be terminated by the Government at any time.

Mr. MILLER. Now, Colonel, there is a little railroad line running from Dam No. 2 downstream a few miles to a point below the bridge across the Tennessee River, known as the Florence Bridge, where you procure gravel, etc., and take it over that road upstream to Dam No. 2.

Colonel BARDEN. Yes, sir.

Mr. MILLER. That is simply used for construction purposes alone.

Colonel BARDEN. Yes, sir.

Mr. MILLER. Is it possible that that railroad may subsequently be used for the transportation of the output of this factory to get it down to a point where navigation could take it. I understand navigation can not not go above the bridge there.

Colonel BARDEN. That is correct.

Mr. MILLER. Can not go above the point which is the downstream terminal of this railroad.

Colonel BARDEN. No, sir.

Mr. MILLER. Now, would it not be probable that in any subsequent use of nitrate plant No. 2, so far as the commercial output of it is concerned, it would be very desirable to have that little railroad running down to the point where it would connect with navigation?

Colonel BARDEN. If the person or corporation that acquired these plants had in mind the construction of any buildings or developments on the north bank, I would say that that railroad might be a very useful adjunct.

Mr. MILLER. That railroad is on the north bank?

Colonel BARDEN. Yes, sir.

Mr. MILLER. And the nitrate plant is on the south bank?

Colonel BARDEN. Yes, sir. You see, the Government has this 200 acres of land on the north bank, and without knowing what Mr. Ford or anybody else has in mind, it would be possible, perhaps, for him to make some development on the north bank there.

Mr. MILLER. From the situation there it would not seem clear that the use of that railroad would become a permanent proposition, so far as handling the output of these plants is concerned.

Colonel BARDEN. No, sir.

Mr. MILLER. And that little railroad is on leased land, is it not?

Colonel BARDEN. Yes, sir.

Mr. MILLER. I am wondering if that is included in the minds of Mr. Ford's representatives as a part of the property to be acquired by the United States and turned over to him.

Colonel BARDEN. Well, I would think that ought to be cleared up, and I would think that the United States ought not to agree to acquire that land, if I may be allowed to express my own opinion.

Mr. MILLER. There is a substantial sum involved there.

Colonel BARDEN. Oh, yes, sir; undoubtedly. May I ask a question here? What part of the plant available there does his offer include?

Mr. MILLER. All of the property consisting of Nitrate Plant No. 2——

Colonel BARDEN (interposing). I mean the construction plant, our machinery, equipment, etc. For example, we have two dredges down there, and one belongs to this work and one belongs to another district.

Mr. MILLER. I was going to reach that in a moment.

The CHAIRMAN. It is now 12 o'clock, and if it is agreeable to the commitee, suppose we have a meeting of the committee to-morrow, Saturday, and try to finish this matter up at that time.

(The committee thereupon adjourned until Saturday, April 29, 1922, at 10.30 o'clock a. m.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Saturday, April 29, 1922.

The committee met at 10.30 o'clock a. m., Hon. Julius Kahn (chairman) presiding.

EXECUTIVE SESSION.

STATEMENT OF COL. WILLIAM J. BARDEN, CORPS OF ENGINEERS, UNITED STATES ARMY, ACCOMPANIED BY MR. F. C. WILLIAMS—Resumed.

The CHAIRMAN. Colonel, we will proceed from where you left off yesterday and Mr. Miller wants to ask you some additional questions.

Mr. MILLER. Colonel, we have considerable equipment down there on the construction work of Dam No. 2, have we not?

Colonel BARDEN. Yes, sir.

Mr. MILLER. Does that equipment all belong to the United States?

Colonel BARDEN. Yes, sir.

Mr. MILLER. About what does it consist of? What are the principal items?

Colonel BARDEN. The principal items are a considerable amount of railroad rolling stock, locomotives, cars, etc.

Mr. MILLER. About how many railroad locomotives and about how many cars?

Colonel BARDEN. We have 27 locomotives, 79 box cars, 65 flat cars, 60 20-yard dump cars, 15 gondolas, standard gauge, 12 locomotive cranes, 7 large traveling derricks or cranes of 84-foot radius and 10-ton capacity; 3 similar cranes with a 10-ton capacity and a radius of 115 feet; 3 air compressor plants, 11 steam shovels, a large number of rock drills, 7 rock crushers, 2 large gantry cranes with 4-yard buckets for unloading sand and gravel, some floating plant, consisting of one steamboat, 2 hydraulic dredges, 2 screening plants, a number of barges, and in addition a large amount of machinery of various kinds, blacksmithing and machine tools and carpenter tools, and, of course, a number of buildings in which these things are housed.

Mr. MILLER. Are these locomotives and flat cars and gondolas and the railroad rolling stock of standard gauge.

Colonel BARDEN. Yes, sir; all of standard gauge. We have a few narrow-gauge gasoline locomotives, but they are not included in the list I gave you.

Mr. MILLER. About how many gasoline locomotives are there, Colonel?

Colonel BARDEN. I think five.

Mr. MILLER. Are these locomotives of which you speak of a small type or are they large locomotives?

Colonel BARDEN. They run from 25 tons to 60 tons. The larger ones are good size, standard locomotives.

Mr. MILLER. Was all of that equipment used in construction work during the period of construction activity down there?

Colonel BARDEN. Yes, sir.

Mr. MILLER. Now, what kind of dredges are these dredges that you speak of? What are they used for?

Colonel BARDEN. They are hydraulic dredges used to dredge the sand and gravel which is required for the concrete.

Mr. MILLER. As I understand it, you get the sand and gravel that goes into the concrete work there from down the river or downstream from dam No. 2.

Colonel BARDEN. Between 8 and 9 miles below Florence.

Mr. MILLER. That would be approximately how far from the dam?

Colonel BARDEN. About 12 miles below the dam.

Mr. MILLER. Now, these dredges scoop up the gravel and sand——

Colonel BARDEN. Suck it up.

Mr. MILLER. Yes; and then it is screened and cleaned and put on barges, towed up the river to a landing point on the north side of the river, about 3 miles below the construction work.

Colonel BARDEN. Yes, sir.

Mr. MILLER. And then from those barges it is transferred to railroad trains and from there taken by this equipment of which you speak up to the work.

Colonel BARDEN. Yes, sir.

Mr. MILLER. And then there are large concrete mixers at the work.

Colonel BARDEN. Yes, sir; there are three concrete mixing plants that I omitted to mention, one on the north side with two 2-yard mixers, one on Jackson's Island with two 4-yard mixers, and one on the south shore with two 2-yard mixers.

Mr. MILLER. Jackson Island is an island approximately midstream in the Tennessee River which this dam cuts right across.

Colonel BARDEN. Yes, sir.

Mr. MILLER. What is the daily capacity of each one of these concrete mixers when run to full capacity?

Colonel BARDEN. The Jackson Island mixer has a capacity of about 2,000 yards for two 8-hour shifts, and the other plants would each have about one-half of that capacity. The capacity of our mixing plants is greater than the amount of material that we are able to get and to place.

Mr. MILLER. Are both of these dredges of which you speak used in obtaining sand and gravel from the bed of the river at the locality you speak of?

Colonel BARDEN. Yes, sir.

Mr. MILLER. Were they constructed specially for this work or were they part of the equipment of the United States previously?

Colonel BARDEN. One of the dredges belongs to the Mobile district of the Engineer Department and was rented from that district for this work. It does not really belong to this work, but we rent it. The other dredge was constructed for this work and belongs to the work.

Mr. MILLER. What was the approximate cost of the construction of that one dredge?

Colonel BARDEN. About $135,000.

Mr. MILLER. And the other dredge is of approximately what value?

Colonel BARDEN. I think about $80,000.

Mr. MILLER. Were these locomotives and flat cars and the other equipment of which you spoke obtained especially for this work or were they brought there from other places?

Colonel BARDEN. A good deal of our equipment has been obtained from surplus war stocks that were available after the war and a considerable portion of it was transferred to us without cost. Some of it was bought out of this appropriation and some of it was transferred from other works and paid for; but a considerable amount of it does not represent an actual expenditure from our appropriation.

Mr. MILLER. Will you give the committee your judgment of the value of this equipment, including the dredges and the railroad stock, locomotives, concrete mixers, cranes, dump cars, etc. What is your estimate of the value of that equipment?

Colonel BARDEN. About $2,500,000.

Mr. MILLER. Suppose the construction of that dam should be commenced with an earnest effort for the completion of it at as early a date as practicable, this equipment would all be in use, would it?

Colonel BARDEN. Practically all of it; yes, sir.

Mr. MILLER. What do you do with the excavation for this dam? As I understand it, this dam is set down in the bed of the river something like 30 feet in places and in some places more than that.

Colonel BARDEN. The power house goes down as deep as that and the dam proper goes down about 16 feet.

Mr. MILLER. What do you do with the débris that comes out of that excavation?

Colonel BARDEN. All of the rock excavated that is clean and suitable for use in concrete we crush and put into the concrete, and the larger pieces are put in as what we call plum stone.

Mr. MILLER. You use all of the available débris from this excavation that is practicable to go into the work as a filler with the concrete.

Colonel BARDEN. Yes, sir.

Mr. MILLER. Thereby lessening the amount of gravel you have to bring from down the stream?

Colonel BARDEN. Yes, sir. The amount of sand we have gotten from the dredging operations has been a little more than is necessary for use with the gravel and has been sufficient to use with the rock that we have crushed from the excavation.

Mr. MILLER. Suppose work should commence there in earnest and there should be sufficient appropriation made by Congress for the completion of the dam, what is your judgment as to the period of time it would take to complete the work?

Colonel BARDEN. I would hope, if we could start now, we could complete in the winter of 1924–25. Our plans for the stream control contemplate three low-water seasons in which to do the work. In the first low-water season, which would be this year, provided we had funds available——

Mr. MILLER (interposing). You mean this fall?

Colonel BARDEN. This coming season, the low-water season.

Mr. MILLER. What is the low-water season on the Tennessee River?

Colonel BARDEN. From June to the 1st of December. In this season, if we had the money, we would close off the north channel, cofferdam that off, make the excavation, put in the concrete, all of it up to an elevation of 7 feet above the original bed, and then 12-foot piers carried up above high water. These openings are left for the eventual closing of the dam. In the second low-water season we would similarly cofferdam off the south channel and bring the work in that channel to the same condition as that in the north channel.

Mr. MILLER. Let me ask you a question there. Where is the navigating channel of the river at Dam No. 2—on the north bank or the south bank?

Colonel BARDEN. The north bank, where the big mass of concrete is in.

Mr. MILLER. And navigation hugs the north bank of the river.

Colonel BARDEN. Right immediately adjacent to the north bank of the river where the concrete has been carried to the full height.

Mr. MILLER. You spoke of the south channel, that is not the navigating channel?

Colonel BARDEN. No, sir.

Mr. MILLER. The principal flow of water is on the south side, but that is not capable of navigation, and the navigating channel hugs the north shore.

Colonel BARDEN. That is correct.

Mr. MILLER. You are figuring on approximately three years for the completion of the dam?

Colonel BARDEN. I was going to explain that in the third low-water season, we would have the river flowing through these 42 openings. The closure would be made by bulkheading off four or five openings at a time and putting in concrete about 5 or 6 feet high, and carrying that all the way across the river through these 42 openings, by which process the river would have been raised about 5 feet. That process would be repeated over and over again until we got to the top of the dam. It seems impracticable to us to complete the work in less than three low-water seasons for the reasons that I have just tried to explain.

The CHAIRMAN. That would really be two years.

Colonel BARDEN. Two and a half to three years.

The CHAIRMAN. If you take the first low-water season as this year, the second low-water season would be next year, and the third the next year after that, making approximately two years?

Colonel BARDEN. It would take at least to the end of the third low-water season, which would be a minimum of two and a half years.

Mr. MILLER. It has been intimated to us here, Colonel, and indeed, the statement has been made by the Ford representative, that the dam could be completed at a much earlier period that that if they were given the authority to complete it. What do you think about that?

Colonel BARDEN. So far as we can see, it would be absolutely impossible, but they may have some methods or plans superior to ours, about which we have no information.

Mr. QUIN. You might explain to the witness right there, Mr. Miller, that the statement was made in that connection that that would be because they would not be restricted to the hours and the limitations that the Government agents are under in construction work.

Mr. MILLER. I was going to follow that up, Mr. Quin. You spoke a moment ago about shifts; how many hours constitute a shift down there?

Colonel BARDEN. Eight hours.

Mr. MILLER. It was also intimated that some of the equipment and machinery for the dam down there was of an obsolete and out-of-date, cumbersome character, and that quicker-working machinery would accomplish much better results. What do you think about that?

Colonel BARDEN. I do not agree with that statement.

Mr. MILLER. Is your equipment on the job there now such equipment as is up to date and modern and easily and quickly operated?

Colonel BARDEN. We consider it so in all respects.

Mr. MILLER. You know that sometimes a big, heavy, lumbering crane is slow in its operation, whereas other cranes are quick and nimble.

Colonel BARDEN. I think the criticisms you mention referred particularly to the crushing plant and to the steam shovels.

Mr. MILLER. Yes; and I have heard that criticism with reference to some of those cranes. Did any of these cranes come from the Hog Island Navy Yard?

Colonel BARDEN. No, sir; those cranes were built especially for this work.

Mr. MILLER. What about this crushing machinery?

Colonel BARDEN. It is standard, modern machinery of the type that is used everywhere throughout the country.

Mr. MILLER. Now, what would be your plan for not only completing Dam No. 2 but constructing Dam No. 3? Would you complete Dam No. 2 first and then take your equipment to Dam No. 3, or would you have the preliminary work done on Dam No. 3 as Dam No. 2 approaches completion?

Colonel BARDEN. We would expect to do some preliminary work on Dam No. 3 before the completion of Dam No. 2, but we would expect to make full use of all the construction plant at Dam No. 2 for Dam No. 3, so that actual construction operations on a large scale on Dam No. 3 could not commence until the plant could be released from Dam No. 2. Of course, some of the plant at Dam No. 2 might be released before the work was entirely finished, so that, perhaps, for the last year of the work on No. 2 we might be doing something at both places; but, as a general proposition, the plant at No. 2 should be used at No. 3, and, of course, would not be available until the work at No. 2 was completed.

Mr. MILLER. The committee notes that the estimate of the Engineer Corps for the completion of Dam No. 2 and the construction of Dam No. 3 is approximately $50,000,000 for the two dams.

Colonel BARDEN. For full completion?

Mr. MILLER. Yes.

Mr. PARKER. Is it not $53,000,000?

Colonel BARDEN. My estimate, Judge, was $28,000,000 for Dam No. 2 and $25,000,000 for Dam No. 3. The Chief of Engineers reduced my estimate for Dam No. 2, from $28,000,000 to $25,000,000 and did not change the estimate for Dam No. 3.

Mr. PARKER. And that does not include flowage rights?

Colonel BARDEN. Oh, yes; it does.

The CHAIRMAN. I think in writing a letter about those figures, the Chief of Engineers stated that by reason of the fact that the war was over and things were becoming cheaper, he felt perfectly safe in saying that $50,000,000 for the two dams would be ample.

Colonel BARDEN. That is correct; yes, sir; but I think he reached that conclusion by simply reducing my estimate of $28,000,000 for Dam No. 2 to $25,000,000 and leaving the estimate for Dam No. 3, as originally made at $25,000,000, the total being $50,000,000, as you state.

The CHAIRMAN. Of course, we all know that since the war prices have come down.

Colonel BARDEN. Yes, sir; but so far as my office is concerned, we feel that they also may go up again before this work is finished, and therefore we are rather inclined to adhere to the estimates as we submitted them.

Mr. MILLER. What is your judgment of the completion of the full project for both dams there?

Colonel BARDEN. Six years.

Mr. MILLER. That is to say, it would take three years to complete Dam No. 2 and then three more years to complete Dam No. 3, making the completed project come along six years from now.

Colonel BARDEN. Yes, sir.

Mr. MILLER. Where do you procure your concrete that goes into the construction of the dam?

Colonel BARDEN. The materials for the concrete are the sand and gravel, which are procured, as already stated, from down the river, and the cement.

Mr. MILLER. Where do you get the cement?

Colonel BARDEN. The cement is purchased from different mills. The first cement used was purchased from the Lehigh mill at Mitchell, Ind. Subsequent to that, the bulk of the cement was purchased from southern mills in the vicinity of Birmingham, the Atlas mill, the National Cement Co. mill, and some from Demopolis, the Gulf States Cement Co.

Mr. MILLER. Were the prices satisfactory?

Colonel BARDEN. They were pretty high at first and were reduced somewhat for the last cement that we purchased in the winter of 1921 and they are now still lower.

Mr. MILLER. This is a solid cement dam with no masonry in it.

Colonel BARDEN. There is no stonework in it, and the dam and the bulk of the power house is what we call mass concrete; that is, without any reinforcement. Certain portions of the power house have steel reinforcement.

Mr. MILLER. What is the width or the thickness of the face of the dam?

Colonel BARDEN. The dam on the river bed is 101 feet wide, and then there is 59 feet of apron in addition to that, making the total width 160 feet at the river bed.

Mr. MILLER. That is Dam No. 2?

Colonel BARDEN. Yes, sir.

Mr. MILLER. The plans for Dam No. 2 were prepared by Hugh L. Cooper & Co., were they?

Colonel BARDEN. The original plans for both dams, No. 2 and No. 3, and also for Dam No. 1, a small navigation dam, were prepared by the engineer office at Chattanooga under Major Burgess, and they are printed in this House Document No. 1262, Sixty-fourth Congress, first session. Those were the general plans. After this work was started the detailed plans for the dam and the preliminary plans for the power house were worked up in the district office at Florence and also some of them in the division engineer's office at Cincinnati. This was prior to the employment of the firm of Hugh L. Cooper & Co., the consulting engineer. When they were employed in July of 1920 all of the plans were turned over to them for revision and completion, and a good many of them were changed.

Mr. MILLER. In vital particulars or in minor particulars?

Colonel BARDEN. Well, some were rather important changes.

Mr. MILLER. What would you say as to the durability of this dam, completed under the present plans and specifications?

Colonel BARDEN. Oh, we consider that the dam would be permanent. There is no reason to assume that it would become anything but a geological feature of the landscape. The metal portions of it, the gates, might have to be renewed from time to time, and, of course, the machinery in the power house would have to be renewed perhaps every 25 or 30 years, but the work as a whole would be a permanent structure.

Mr. MILLER. And properly blended concrete increases its value, so to speak, the longer it stands, does it not?

Colonel BARDEN. The strength of concrete does increase up to a certain limit of time and thereafter it is practically constant.

Mr. MILLER. What do you figure would be the cost of upkeep to the Government, say, for the next century—of 100 years?

Colonel BARDEN. I have assumed, roughly, that 5 per cent of the original cost—that is to say, of the money required for completion now—would be a very liberal sum for cost of operation, maintenance, depreciation, obsolescence, etc., so that in making my figures as to what return I thought the Government ought to get or could get I have taken a figure of 9 per cent on the cost of completing Dam No. 2—that is, completing it for eight units—which would be a little over $2,000,000 per year. That $2,000,000 per year would be practically

9 per cent on the cost of completing the dam for eight units, and would give 4 per cent for interest and 5 per cent, which, as I say, is a very liberal figure for maintenance, operation, depreciation, obsolescence, etc.; and I was hoping the committee would give me a chance later to show that I thought that that amount could be received without any question.

Mr. MILLER. The plans of this dam, you say, were materially changed by the H. L. Cooper Co. In what respects were they changed most vitally from the plans that had been previously prepared by the Engineer Corps.

Colonel BARDEN. One of the first changes was the widening of the heel trench.

Mr. MILLER. Just explain that expression "heel trench" if you will.

Colonel BARDEN. This upper portion of the dam is carried down into the rock lower than the main portion of the dam in order to give it a hold, and we call that the heel trench. That was widened from 25 to 35 feet.

Mr. MILLER. This is upstream, is it [indicating on map]?

Colonel BARDEN. Yes, sir.

Mr. MILLER. And this is your brace down here [indicating]?

Colonel BARDEN. That is correct. That was widened from 25 to 35 feet. That made quite a material increase in the cost of the dam, because it required that much more rock excavation as well as that much more concrete.

Mr. MILLER. And, incidentally, increased the cost of the dam.

Colonel BARDEN. It increased the cost of the dam; and while, of course, it gave a certain amount of increased stability, in the opinion of our office the increase in stability was not commensurate with the increase in cost.

Mr. MILLER. Are Hugh L. Cooper & Co. preparing plans for these dams? I believe you said the plans are not completed.

Colonel BARDEN. Yes, sir.

Mr. MILLER. And all the plans and specifications are prepared in the office of Hugh L. Cooper & Co.?

Colonel BARDEN. Yes, sir. I ought to modify my previous answer, however, about that heel trench, by saying that all of these changes, of course, were approved by the Chief of Engineers, and, therefore, when he says it is necessary, it is necessary, so far as I am concerned.

Mr. MILLER. When Hugh L. Cooper & Co. send plans and specifications of this dam from time to time, are those plans and specifications approved by the Chief of Engineers before they reach your office?

Colonel BARDEN. Yes, sir.

Mr. MILLER. Have you figures as to what the Government has paid to Hugh L. Cooper & Co. on this project so far, up to and including the month of March, 1922?

Colonel BARDEN. Yes, sir. From July, 1920, to the end of March, 1922, we paid them a total of $196,590.63, of which $68,765.53 was overhead.

Mr. GARRETT. How much?

Colonel BARDEN. $68,765.53.

Mr. MILLER. Now, his system is to figure up the salaries of all these men on the job and then add 60 per cent to it.

Colonel BARDEN. Yes, sir.

Mr. MILLER. That would make a man who was on a salary of $500 a month be paid by the Government an $800 salary.

Colonel BARDEN. It makes the Government pay the firm $800.

Mr. MILLER. What is the purpose of that rather unusual and ingenious method of figuring the salary of a man, do you know?

Colonel BARDEN. Well, Colonel Cooper says that that is the usual method employed by consulting engineers in charging private parties for their services, and that in the case of private parties they charge them, in addition to this, an additional sum, so that he says he is not charging us as much as he would a private individual.

Mr. STOLL. Colonel Cooper is good at juggling figures anyway.

Mr. MILLER. I do not know whether they are juggling, or just what it is, but anyway a man whose salary appears on the pay roll at $500 a month, that means that the Government pays him $500 plus $300, or a total of $800.

Colonel BARDEN. You pay the firm that much; yes, sir.

Mr. MCKENZIE. Colonel, may I ask you one question, with the permission of Mr. Miller? Is it not true that Colonel Cooper, prior to the time of his employment by the Government in connection with this enterprise, took a certain position and expressed certain views in regard to the whole project which were entirely changed and he took a different position and now advocates things

that he once condemned in connection with this enterprise? In other words, there has been a complete change of front.

Colonel BARDEN. I understand your question and my answer to that question is based on my general information and is, perhaps, subject to correction. Colonel Cooper held a commission in the National Army during the war, and when this dam was started I understand he was brought back from France with a view to putting him in charge of it. The records show that Colonel Cooper was the district engineer from April 1, 1918, to May 24, 1918. At that time, as I understand it, he did make a report to the Chief of Engineers in which he expressed a doubt as to the stability or suitability of the foundations both in the river bed and at the south abutment. Just what he recommended in connection with that, I can not say. Whether he simply recommended further investigation or not, I do not know. Do you know, Mr. Williams?

Mr. WILLIAMS. No; I do not.

Colonel BARDEN. Anyway, he did make a report in which he expressed a doubt about it.

Mr. MCKENZIE. Colonel, are you familiar with the testimony taken before the Graham investigating committee?

Colonel BARDEN. I am not very familiar with that; no, sir; only in general terms.

Mr. MCKENZIE. Do you understand that when he first appeared before that committee he knocked the whole proposition at that time?

Colonel BARDEN. No, sir; I do not know that. My impression of the situation, in answer to your question, is, as I say, that back in April of 1918 he did make a report expressing doubt as to the suitability of the foundations and the abutments. Then his connection with the work ceased, and, in spite of his rather adverse recommendation or criticism or opinion, the Chief of Engineers ordered the work to go ahead anyway. The Chief of Engineers was satisfied that everything was all right and that the work should proceed. Then at this later date, after the foundations had been excavated and they could see what was there and it was demonstrated by actual vision that everything was all right, then, as I understand it, he did write a letter to the Chief of Engineers or to one of the committees—perhaps this committee—in which he said that he was now convinced that his original doubts were in error and that it was perfectly all right to go ahead.

Mr. MCKENZIE. And at the time of writing that letter he was in the employ of the Government, was he not, in connection with the project?

Colonel BARDEN. I think that was just prior to his connection with the Government.

The CHAIRMAN. He did not write to this committee.

Colonel BARDEN. I think he wrote, perhaps, to the Chief of Engineers. I am not really familiar with that.

Mr. CROWTHER. You do not know that when he was employed by the Government and manifested a tendency to throw cold water on this project he was whisked over to Europe out of the way, because he was against it?

Colonel BARDEN. I do not know anything about that.

Mr. CROWTHER. You do not know anything about that suggestion being made before the Graham committee, that they got him out of the way because he was against it, and ordered him over to France?

Colonel BARDEN. I do not know anything about that; no, sir. I had no connection with the work at that time. I do know that the work went ahead in spite of his opinion.

Mr. MILLER. Colonel, Mr. Ford's representatives estimate that these two dams can be completed for $42,300,000, a sum about $7,500,000 less than the Government's estimate or the estimate of the Corps of Engineers. What would you say regarding that estimate of $42,300,000 as against the estimate of the Corps of Engineers of $50,000,000?

Colonel BARDEN. I think Mr. Ford's estimates are absolutely inadequate, and I am altogether unable to understand upon what information he based a number of his figures. I have had a copy of his estimates given to me and, referring to the Wilson Dam for which he estimated that the cost for the 18 units would be $23,234,543, an examination of his figures shows items either omitted altogether or arbitrarily and unreasonably reduced amounting to $2,535,000; and in addition to that, in order to get the cost to the Government, there would be rental for sites, payment for flowage damages not yet settled, expenses of consulting engineers and other engineering, clerical, office, and miscellaneous expenses amounting to perhaps $860,000.

In other words, there is at least $3,300,000 that we can see at once should be added to his figures in order to make them adequate for Dam No. 2. For Dam No. 3 his estimates seem to us to be still more inadequate. I am entirely unable to see how he could expect to complete that dam for as small a sum as he figures, which is $16,588,175, as against our estimate of $25,000,000. To make this figure of $16,588,175 comparable with our figures there are certain quantities of earth and rock excavation, concrete and highway and bascule bridge construction, amounting at the unit costs used by Mr. Ford to $1,100,000. Then there are the flowage damages and clearing the reservoir sites, which would be $2,331,000 more, payments to consulting engineers of perhaps $425,000, and other engineering, clerical, office, and miscellaneous expenses amounting to at least $75,000, which would bring his total up to $20,500,000. Those are things that we can see just by an off-hand examination of the figures have been omitted so far as the cost to the Government is concerned. For the item of contingencies, he reduced that way below our figures, and said: "The necessity for this item is greatly reduced because the Dearborn Construction Co. assumes the hazard of construction and purchase of major equipment." Of course, that note would have no bearing now, since his offer has been modified so that he would pay interest on the cost, whatever it might be.

Mr. MILLER. Who was Mr. Ford's principal hydraulic or construction engineer that came down there?

Colonel BARDEN. Mr. Mayo was the only man that ever came down there.

Mr. MILLER. How much time did he put in on the plans and specifications in figuring these things out and arriving at his data upon which he based the estimate of $42,300,000?

Colonel BARDEN. He was only down at the dam one day, but, of course——

Mr. MILLER (interposing). But, of course, he had access to the plans in Mr. Cooper's office?

Colonel BARDEN. I think so.

Mr. MILLER. Now, on top of this Dam No. 2 are to be erected crest gates, as I understand it?

Colonel BARDEN. Yes.

Mr. MILLER. Those are to be about 18 feet high, composed of iron?

Colonel BARDEN. Yes, sir.

Mr. MILLER. And they are swinging gates?

Colonel BARDEN. They slide up and down, vertically.

Mr. MILLER. And they would have to be renewed, I presume, before any extraordinary length of time had elapsed?

Colonel BARDEN. Oh, yes; they would have to be renewed at intervals during the 100 years. If they are kept properly painted the life would be considerable, probably 25 years at least.

Mr. MILLER. They would stand approximately as long as the wing gates to the lock, would they not?

Colonel BARDEN. Yes; it is the same character of work.

Mr. MILLER. Now, on each one of these dams there is a highway across the river, is there not?

Colonel BARDEN. Yes, sir.

Mr. MILLER. What was the purpose of these highways across the river? Was that Mr. Cooper's idea, or how did that come about?

Colonel BARDEN. The original plans provided for a highway bridge on dam No. 3, but not for No. 2, which at that time had no gates. When he was in charge of the work in the spring of 1918 Colonel Cooper suggested a similar plan for No. 2, and this was subsequently adopted.

Mr. MILLER. Would they be available for railroad transportation?

Colonel BARDEN. No, sir; they are for highways only.

Mr. MILLER. How wide is that highway across there?

Colonel BARDEN. Twenty-three feet.

Mr. MILLER. On each one of the dams?

Colonel BARDEN. It is 23 feet on dam No. 2 and the detailed plans for No. 3, you understand, have never been prepared but it would probably be about the same width.

Mr. MILLER. We are paying the firm of Hugh L. Cooper & Co. approximately $10,000 a month now, during the dormant period of construction there.

Colonel BARDEN. Yes.

Mr. MILLER. Now, if activities should commence there and construction work be resumed, that pay roll would be increased, would it not?

Colonel BARDEN. Yes, sir.

Mr. MILLER. Approximately, how much?

Colonel BARDEN. I suppose he would have, perhaps, a dozen additional inspectors on the work and I suppose their salaries would be about $225 each, on the average.

Mr. MILLER. Would that include the 60 per cent.

Colonel BARDEN. No, sir; the 60 per cent is in addition to that.

Mr. MILLER. So that would be about $360?

Colonel BARDEN. Yes; it would roughly amount to about $4,500 more per month.

Mr. MILLER. Making the total in the vicinity of $16,000?

Colonel BARDEN. Probably $15,000 or $16,000 a month.

Mr. MILLER. And that would run for the next six years?

Colonel BARDEN. I presume that these plans will be completed before very long and thereafter there is not expected to be so many men employed on the plans.

Mr. MILLER. They could be released from work on the plans but the inspectors would still be continued during the entire six years.

Colonel BARDEN. They would continue throughout the work; yes, sir.

The CHAIRMAN. Who entered into that contract for doing this work with Mr. Cooper?

Colonel BARDEN. The Chief of Engineers.

The CHAIRMAN. When was it?

Colonel BARDEN. In July of 1920. The first contract was in July, 1920, and the present contract is dated October 1, 1920.

The CHAIRMAN. That was when Mr. Baker was the head of the War Department?

Colonel BARDEN. Yes, sir.

The CHAIRMAN. Who was the Chief of Engineers at that time.

Colonel BARDEN. General Beach.

The CHAIRMAN. Had he already been appointed?

Colonel BARDEN. Yes, sir.

Mr. GARRETT. Does this contract provide for cancellation at the end of 30 days' notice.

Colonel BARDEN. Upon 30 days' notice by either party.

Mr. GARRETT. Has there been any notice given for its cancellation?

Colonel BARDEN. Not that I know of; no, sir.

Mr. MILLER. And they are still working on the plans. This is about the biggest dam in the country, is it not?

Colonel BARDEN. Yes, sir. It is the biggest dam in the world so far as the amount of masonry is concerned.

Mr. MILLER. The biggest and largest dam ever constructed.

Colonel BARDEN. Yes, sir.

Mr. MILLER. How does it compare with the Assuan Dam on the Nile?

Colonel BARDEN. The amount of masonry in this dam is approximately 1,260,000 cubic yards, and our information is that the Assuan Dam is 1,179,000 yards, and the largest dam in this country, measured by the amount of masonry, is that at Kensico, in New York, which is 942,000 cubic yards.

Mr. MCKENZIE. How about the Keokuk?

Colonel BARDEN. The Keokuk has 540,000 cubic yards.

Mr. MILLER. The Keokuk Dam is a comparatively small dam in comparison with this dam.

Colonel BARDEN. There is a little less than half the amount of masonry.

Mr. MILLER. And, of course, the preparation of the plans for such a huge affair as this is an immense job in itself?

Colonel BARDEN. Oh, yes, sir.

Mr. MILLER. It is an immense job.

Mr. MCKENZIE. Is it any more difficult for an engineer to prepare the plans for a dam which is 2 miles long than one that is only 1 mile long?

Colonel BARDEN. The length of the dam would cut no particular figure, but the height of the dam would make a material difference. This dam is over twice as high as the Keokuk Dam.

Mr. MCKENZIE. Of course, I am not an engineer; but do you not have certain rules that you work by so that you increase the base as you go up into the air and all that sort of thing?

Colonel BARDEN. Yes, sir. I do not mean to say that it is any more difficult to design a high dam than a low dam, but, naturally, there is a little more hazard connected with it, and you would have to be a little more careful.

Mr. McKenzie. As an Army officer and as an engineer with a number of years experience, I want to ask you if you do not feel that any officer in the Corps of Engineers in the United States Army, which is made up of selected men from West Point, as a rule, who, after a number of years experience, was held to be incompetent to take charge of any sort of engineering project of this character, ought to be in class B?

Colonel Barden. I think that is correct, so far as the dam and the lock are concerned. As I stated yesterday, the electrical portion of the work, the development of the power house, etc., is a matter that does not ordinarily come within the province of the Corps of Engineers, and for that portion of the work it would probably be necessary, in any case, for us to call upon a specialist in that line.

Mr. Miller. Colonel, the construction of each dam is almost a unit in itself, and each one has its individual condition; that is, no two dams in the world have the same kind of bases and the same kind of anchorages and things of that sort, and each dam, like each large building that has to be constructed, is a unit in itself, and the questions involved have to be solved in view of the local conditions.

Colonel Barden. The treatment of the foundations would differ in individual cases, but a general cross-section of a dam 50 feet high would be the same in one place as in another.

Mr. Miller. Now, you are dealing down there in a limestone country which, from an engineering point of view, is a rather hazardous and dangerous condition to deal with, is it not?

Colonel Barden. We do not consider that that is true at the site of either dam No. 2 or dam No. 3. The experience had at Hales Bar Lock and Dam has of course, caused a good deal of anxiety on the part of many people as to what might be found at Muscle Shoals, and partly on account of that and partly to be doubly sure, we have had very distinguished geologists examine that situation and report upon it. A very complete investigation and elaborate report was made by Professor Crosby, formerly of the Massachusetts Institute of Technology, and reports were made by other geologists. As a result of those and as a result of the actual excavations that have been made, we have absolutely not a shadow of doubt as to the stability or the suitability of the foundations for this dam. The material, while it is of a limestone base, is very highly siliceous, full, as you saw, of this flint rock of the very hardest kind, and there are no large cavities that have been found anywhere in the bed of the river. There were, as you saw, on the south abutment, some small cavities in a layer of rock about 40 feet high. Those are being thoroughly investigated by two tunnels run, one at the botton of this suspicious layer and one at the top of it, and whenever we encounter a vertical seam or cavity, we carry an upraise from the lower tunnel to the upper tunnel. Eventually, that will all be filled in with concrete, and we have not the slightest doubt about the entire stability of this dam; and for dam No. 3 the conditions are equally favorable.

Mr. Miller. But when you are building a dam on a great immense project of this character, in a limestone country, that puts every engineer on his guard, does it not?

Colonel Barden. Oh, yes.

Mr. Miller. And he has a warning, so to speak, from an engineering standpoint, that he is in a limestone country and he takes probably more precautions and proceeds with greater care and after greater investigation than he would if he was not in a limestone country.

Colonel Barden. Yes, sir. Of course, the committee understands that in 1915 they made a very extensive set of borings and perhaps it would be of interest to the committee to know, too, with reference to this Hales Bar Lock and Dam, that while you can see the water boiling up below the dam, which has passed below the dam probably at a considerable depth, perhaps 100 feet below, the actual loss of water is so small that they have not been able to measure it, and they tell me that while they are making efforts to cut off these leaks by pumping down hot asphalt way below the bed of the river, they are really doing that more as a matter of pride than because they feel that the present conditions cause any loss of power, and, of course, there is absolutely no question about the stability of the dam. It is only a question of possibly losing some water that might otherwise be converted into power.

Mr. Parker. Will not that tunnel increase in size in a limestone country?

Colonel BARDEN. Professor Crosby answered that question by saying that probably ten or fifteen million years had been required to create those cavities and he thought we need not worry about their increasing very much in our time.

Mr. MILLER. There are very few dams, I suppose, where there is not a certain amount of seepage and leakage through subterranean cavities or around the anchorage or some place of that sort.

Now, I want to take up just one other point in reference to the Cooper contract. That contract says that in the payment of hese salaries there shall be no profit.

Colonel BARDEN. It says "with no allowance for profit."

Mr. PARKER. You spoke about the amount of repairs. The Ford proposal suggests $35,000 as an allowance to be paid the United States for an agreement to maintain and operate the dam outside of the power house.

Colonel BARDEN. I think that is correct.

Mr. PARKER. Your estimate is a great deal more than $35,000.

Colonel BARDEN. I think we are not talking about exactly the same thing. I think what he referred to was simply the maintenance of the dam proper, with the gates on top of it as distinguished from the operation and maintenance of the power house.

Mr. PARKER. He does not say the maintenance of the gates but of the entire dam, and I want to get at what the repairs to the dam would be. Let us first take up the gates. How many gates are there?

Colonel BARDEN. 63.

Mr. PARKER. How much did each one cost?

Colonel BARDEN. They are estimated to cost about twenty-five or twenty-six thousand dollars each of which $16,000 is for the gates alone and about $10,000 for the operating machinery.

Mr. PARKER. What repairs would be needed to the machinery and gates? You say the gates would probably last 25 years if they were painted.

Colonel BARDEN. Yes.

Mr. PARKER. Would there be no repairs necessary to the operating machinery?

Colonel BARDEN. Oh, undoubtedly; there would be some repairs necessary to the operating machinery.

Mr. PARKER. About how much?

Colonel BARDEN. I have made no attempt to estimate that. It would be very difficult to estimate it. I do not know that I could give you a figure that would be worth anything. I would say offhand that that figure of $35,000 was probably, if anything, under rather than over what the cost would be.

Mr. PARKER. The cost of what?

Colonel BARDEN. The cost of repairing those gates and renewing them, say, every 25 years.

Mr. PARKER. How much would the painting cost every year?

Colonel BARDEN. I should thing perhaps from $1,000 to $1,500 a year would be ample for that. They would not have to be painted every year, of course.

Mr. PARKER. How large are those gates?

Colonel BARDEN. 18 by 39 feet.

Mr. PARKER. How many men would have to be employed regularly for the operation of the gates?

Colonel BARDEN. I feel that it would not be necessary to employ any men for that specific purpose; that there would be an operating force for the operation of the power house, and that whenever it was necessary to operate these gates, which would only be semioccasionally, they could probably be operated by the force already employed. Now, I might amplify my answer by saying——

Mr. PARKER (interposing). I want to say that the reason I asked that question is because the operation and repair of the power house is covered by the Ford proposal and the operation and repairing and maintenance of the dam is put upon the United States, and I want to know what the cost to the United States of the operation of that dam and the repairs to the dam would be.

Colonel BARDEN. It seems to me, if I may be permitted to say so, that that is an unnatural division of responsibility and that the operation of the gates on this dam belongs to the operation of the power house, and that that feature of the offer does not seem to me to be a very wise one.

Mr. PARKER. And you think the repairs alone to these gates would amount to more than the $35,000?

Colonel BARDEN. I would think so; yes, sir.

Mr. PARKER. How about the dam itself? Is there any part of it that would need repairs?

Colonel BARDEN. We would not expect that there would be any repairs required.

Mr. PARKER. Not even where the water runs over the cement year after year?

Colonel BARDEN. We would not anticipate any. We would not think it necessary to make any special provision for that.

The CHAIRMAN. But under the Ford proposal we are obliged to make repairs, if they are necessary.

Colonel BARDEN. Yes, sir. As I say, it would seem to me that that was really an inadvisable arrangement.

Mr. PARKER. Is it not a customary arrangement, when you lease a dam for 50 or 100 years, that the man who takes the dam assumes its maintenance?

Colonel BARDEN. Yes, sir.

Mr. PARKER. And would you consider it a fair thing to ask the landlord for $35,000 a year to assume the maintenance and repair and the insurance of the whole dam and its operation?

Colonel BARDEN. I said yesterday, when you were not here, that it seemed to me that it would simplify the consideration of this question if the dam could be separated entirely from the nitrate plants and the dam treated under the provisions of the Federal water power act.

Mr. PARKER. Yes, I understood that; and that is true, but that is not the way we have to consider it now. I am asking you about what we have to consider now, as to whether the proposition is complete as far as that goes? Would we have to keep inspectors there to insure the maintenance, repair, and operation of this dam?

Colonel BARDEN. The United States, of course, would have a force there for the operation of the locks and I assume whoever was in charge of that could probably in addition——

Mr. PARKER. How large would the force be for locks of that size?

Colonel BARDEN. It would not be over a dozen men.

Mr. PARKER. At a cost of how much a month or a year?

Colonel BARDEN. Perhaps $100 per month per man.

Mr. PARKER. That is $14,000 or $15,000 a year.

Colonel BARDEN. Of course, the number of men employed would depend upon the amount of navigation.

Mr. PARKER. And there is not much navigation there now.

Colonel BARDEN. And there never has been a great deal. I would say that perhaps $20,000 a year would be ample at present.

Mr. PARKER. How did you get at the 5 per sent you allowed for operation, maintenance, and repair?

Colonel BARDEN. Well, that is largely guesswork.

Mr. PARKER. What considerations did you want to cover in naming that 5 per cent?

Colonel BARDEN. I wanted to cover all the employees of the power house, the electricians and engineers required for the operation and maintenance of all the machinery, the turbines, the generators, the switchboards, and all the auxiliary apparatus, and the necessary amount in the form of a sinking fund or otherwise, for the renewal of all of this power-house machinery, which is very elaborate and extensive, from time to time, as may be required. Colonel Cooper gave this committee some figures about that.

Mr. PARKER. That is all with reference to the power house?

Colonel BARDEN. Most of the expense would be in connection with the power house.

Mr. PARKER. Are there no steam engines in connection with these gates?

Colonel BARDEN. No, sir.

Mr. PARKER. How are they operated?

Colonel BARDEN. The gates on the dam are operated hydraulically.

Mr. PARKER. And would need no engineers then?

Colonel BARDEN. No, sir; the lock gates are operated by compressed air.

Mr. PARKER. Now, there has been some talk here about navigation, and it has been suggested you could not have any navigation in the long stretch of river which would be overflowed by Dam No. 3 until the dam is built. Are there not canals along that whole stretch above No. 3?

Colonel BARDEN. There are some navigation facilities existing there at present but the channel is not deep.

Mr. PARKER. How deep is it?

Colonel BARDEN. The shoalest portion is between the two sections of the Muscle Shoals Canal; one section is on the north bank and one section of two locks is on the south bank.

Mr. PARKER. Where is that?

Colonel BARDEN. That is about 18 miles above Dam No. 2.

Mr. PARKER. Is that below or above Dam No. 3?

Colonel BARDEN. Above the site of Dam No. 3. During the low-water season I think the depth there is only 2 feet or less.

Mr. PARKER. But how deep are the canals themselves?

Colonel BARDEN. The canals themselves have a depth of 5 feet.

Mr. PARKER. And how much width and length in the locks, sufficient for vessels engaged in the navigation of that stream?

Colonel BARDEN. About 260 feet——

Mr. PARKER (interposing). Are they abundant for the boats on that river?

Colonel BARDEN. They are sufficient for the navigation that is now there. Of course there is none passing the site of Dam No. 2 at present.

Mr. PARKER. I am not talking of Dam No. 2 because we understand that Dam No. 2 interrupts the whole navigation and, until it is built you can not have any navigation over Dam No. 2, but as to Dam No. 3, it has been suggested here that there would be no navigation whatever after Dam No. 2 was built, unless we built Dam No. 3, while I understand, and I think rightly from what you say, that there is navigation and will be navigation there until you begin to cut it off by building Dam No. 3.

Colonel BARDEN. That is correct. There will be just exactly the condition that existed before we started on No. 2.

Mr. PARKER. And that navigation in extreme low water would be sufficient to carry boats drawing 5 feet?

Colonel BARDEN. They would have 5 feet for probably six months in the year.

Mr. PARKER. And a small temporary dam there would give them 5 feet at any time and would not cost very much, would it?

Colonel BARDEN. What was proposed there was a dam across the river at about the location of Lock No. 1 of the main section of the Muscle Shoals canal. That dam would not be very high but the river is very wide at that point and therefore it would be rather expensive.

Mr. PARKER. How much would that be? It would not run into the millions, would it?

Colonel BARDEN. I think I have those figures here.

Mr. PARKER. Well, would it be millions or hundreds of thousands or what?

The CHAIRMAN. My recollection is the testimony before the committee shows it will cost $1,600,000 a No. 1.

Mr. PARKER. I am not talking about No. 1.

Colonel BARDEN. Mr. Chairman, that is another No. 1.

Mr. PARKER. And that is a real dam and this one is not. You can look that up afterwards, Colonel, and I will not delay the committee by asking you to do that now.

Colonel BARDEN. I will put that in the record.

NOTE.—The estimate cost of this dam and auxiliary work made in 1910 (House Doc. 360, 63d Cong., 2d sess.) was $662,175. This was to provide for a 5-foot depth between the two sections of the canal. To secure a similar depth in the approach to Lock A of the upper section of the canal a lateral dam and auxiliary work, estimated to cost $1,469,624, was proposed. The cost of such work at the present time would probably be twice those figures.

Mr. PARKER. That was a proposition for a depth of 5 feet and that could be carried out even if No. 3 was not built.

Colonel BARDEN. Yes, sir; it would be possible.

Mr. PARKER. And it would not be expensive as compared with the cost of Dam No. 3?

Colonel BARDEN. That is correct, but I would like to enlarge my answer a little bit by saying that Dam No. 3, if constructed, would extend the navigation of the river up to the mouth of Flint River, which is some 65 miles above the site of Dam No. 3.

Mr. PARKER. How far does navigation go now?

Colonel BARDEN. To get a 6-foot navigation over that length of the river, 65 miles, would be a matter of millions of dollars.

Mr. PARKER. Have you not 5 feet of navigation over that distance now?

Colonel BARDEN. No, sir; not all the year around.

Mr. PARKER. How much have you during six months of the year?

Colonel BARDEN. We might have 5 feet for six months of the year, but Dam No. 3, if constructed, would give a 6-foot depth all the year around and a fine channel.

Mr. PARKER. Yes; but the difference is very small between 5 feet and 6 feet, and the question is whether it is worth while to spend $25,000,000 on Dam No. 3 in order to get that navigation.

Colonel BARDEN. I think I might, perhaps, clear the matter up in a little different way by saying that Dams Nos. 2 and 3, if constructed, would give 6-foot navigation for 80 miles, or up to the mouth of Flint River, and that the cheapest way in which we could get a 5-foot navigable channel over that stretch by other means, which would be the extension of the present canal and some open-channel work in addition, would be about $8,600,000. In order to get a 6-foot depth by methods which did not include the development of power but would involve the reconstruction of the present canal would, according to my figures, cost about $25,000,000 or $26,000,000. Now, there would be no suggestion no my part that any such amount of money as that should be spent, but that would be, as a matter of fact, what we would have to spend to get 6-foot navigation over the same length of the river as would be provided by the construction of Dams Nos. 2 and 3.

Mr. PARKER. But you have neevr planned any such thing as that. You have only planned for 5 feet.

Colonel BARDEN. The Muscle Shoals Canal provides for 5 feet.

Mr. PARKER. And that is the present project?

Colonel BARDEN. Yes; that is the existing project.

Mr. WRIGHT. Colonel, do you not think that the offer of Mr. Ford as to the maintenance of the dam or dams, I will say, of $35,000 for Dam No. 2 annually and $20,000 annually for Dam No. 3, coupled with the guaranty on his part that he will maintain and keep in a proper state of repair the machinery and power house, will approximate and practically cover the expense, and that the Government would be saved harmless on those items?

Colonel BARDEN. I am really guessing when I answer that question, Mr. Wright, because I do not know what it would cost to maintain those gates. I said I thought $35,000 was probably the minimum and it might very likely be more, but I would like to say again that it seems to me it would be equally as satisfactory to Mr. Ford to take over the maintenance himself and gamble as to whether that would be $35,000 or $25,000 or $45,000.

Mr. WRIGHT. You think the other plan would be preferable, but yet you do not think——

Colonel BARDEN (interposing). I think it would be preferable from the point of view of the United States, because, as a matter of fact, the operation of these gates is really a part of the operation of the power house.

Mr. WRIGHT. But you do not want to be understood as absolutely stating that those sums would not be adequate for the purpose?

Colonel BARDEN. I could not say positively that they would not be adequate. They might be or they might not be. I do not know.

Mr. WRIGHT. Colonel, of course you do not know just what was done by Mr. Ford in forming his estimate of the cost of the completion of Dam No. 2 and the cost of building Dam No. 3?

Colonel BARDEN. No, sir.

Mr. WRIGHT. Do you know Captain Hardaway, at Columbus, Ga.?

Colonel BARDEN. I know the firm?

Mr. WRIGHT. How do they stand in the engineering world?

Colonel BARDEN. They rank very high. They have done very successful work.

Mr. WRIGHT. Is it not true that they have perhaps constructed more dams than any concern in the country throughout the South?

Colonel BARDEN. I think probably so, so far as the South is concerned. That is correct; yes, sir. They have a high standing in the South.

Mr. WRIGHT. And have built some very large dams?

Colonel BARDEN. Yes; they built at least one dam for the Government on the Warrior River, a dam, I think, about 60 feet high.

Mr. WRIGHT. They have done considerable work in the Carolinas, have they not?

Colonel BARDEN. I think they have.

Mr. WRIGHT. If Captain Hardaway was called into consultation to get up the Ford estimates, you would consider him a pretty high authority, would you not?

Colonel BARDEN. Oh, yes.

Mr. WRIGHT. And if he would back that up by a contract, you would consider that that would mean a good deal, would you not?

Colonel BARDEN. If he would make a contract and give a bond to do the work for the sums estimated by Mr. Ford, I would consider that that was worth very serious consideration.

Mr. WRIGHT. And would be very safe?

Colonel BARDEN. My understanding is that when Mr. Ford was asked if he would guarantee those figures he refused to do so.

Mr. WRIGHT. You would consider that a safe contract for anybody to enter into, would you not?

Colonel BARDEN. Yes; but I do not know that Mr. Hardaway would make any such contract.

Mr. WRIGHT. I am just presuming that he would.

Colonel BARDEN. Yes, sir. As I stated awhile ago, there are some expenses the Government would have to stand that were not included in Mr. Ford's offer; for instance, the expense of the consulting engineer and the expenses for the United States engineers would have to be added to the actual cost of the work, you understand.

Mr. WRIGHT. You spoke about Mr. Mayo spending a day down at the site. Of course, any contractor surrounded by his engineers, with these plans and specifications, could make an intelligent estimate of the cost without actually being on the ground, could he not?

Colonel BARDEN. It would in general be necessary for them to make some kind of an inspection on the ground.

Mr. WRIGHT. Coupled with these expensive plans and specifications?

Colonel BARDEN. It would not be necessary for them to spend a long time at the dam; no, sir.

Mr. MORIN. Colonel, have you ever prepared any figures separating the dam and the water-power proposition from the nitrate plants? You spoke yesterday of separating the two propositions.

Colonel BARDEN. Only to the extent that taking the offer of the Alabama Power Co. at its face value, that would indicate that a private concern would be able to take over that dam as it now stands and complete it in substantial accordance with the terms of the Federal water power act. Their offer, as you recall, was to give to the United States free the second 100,000 horsepower. Converted into dollars and cents, that would perhaps amount to a payment of about 4 per cent on the $17,000,000 that has already been put into the dam. So I made the suggestion yesterday that possibly a fair proposition, so far as Dam No. 2 alone is concerned, would be for some private concern to say, "We will take it as it stands now and complete it at our expense, and pay perhaps 4 per cent on the $17,000,000 already invested; and we will sit down with you and talk over the matter of how much you shall pay for the construction of the locks or for the navigation feature."

Mr. MORIN. Could you prepare those figures without a great deal of trouble and put them in the record?

Colonel BARDEN. That is really all there is to it, Mr. Morin.

Mr. MORIN. Could you follow that with an explanation of what you would do with the nitrate plants?

Colonel BARDEN. No, sir; I could not go into that. My idea is, however, that if the committe, with the advice it has had from the Ordnance Department, assuming that my proposition so far as the dam is concerned was correct, then they could say, "Now, what has been offered us for the nitrate plants? What are we going to get out of that?"

The CHAIRMAN. As a matter of fact, the Ordnance Department has charge of the nitrate plants, and that does not come within the scope of your authority.

Colonel BARDEN. No, sir; and I do not believe that I could give anything that would be helpful, Mr. Morin.

Mr. JAMES. Colonel, you figure that the lands owned by the Alabama Power Co. at Dam No. 3 are the key positions there?

Colonel BARDEN. Yes, sir.

Mr. JAMES. And they were similarly well located at Dam No. 2?

Colonel BARDEN. Yes, sir.

Mr. JAMES. And you offered them $12,000, as what you figured the land was worth?

Colonel BARDEN. That was a tentative offer.

Mr. JAMES. That was approximately what you thought it was worth?

Colonel BARDEN. Yes, sir; those negotiations were had before I was in charge of the dam. I am simply taking those figures from the records.

Mr. JAMES. I mean by your office.

Colonel BARDEN. Yes, sir.

Mr. PARKER. You say there are 63 gates and that they cost, with the machinery, $25,000 apiece, and you thought they would last on the average 25 years.

Colonel BARDEN. That is my guess.

Mr. PARKER. That would mean about two and a half gates to replace every year, and two and a half gates at $25,000 would amount to $62,000, in addition to the cost of the men and the operation and the painting and all that sort of thing.

Colonel BARDEN. That is correct. Of course, a private concern would put some money out at interest and amortize those things.

Mr. CRAGO. I was interested in the statement the colonel made yesterday to the effect that there were two separate and distinct propositions down there, and it would be probably better to separate them. That was the drift of your statement yesterday, Colonel?

Colonel BARDEN. Yes, sir.

Mr. CRAGO. You have already explained about the cost of completing the power proposition there. You have been on this project and you naturally have tried to visualize what the Government could do with the whole proposition there, and even though you may not know the technical uses to which the Ordnance Department might place these nitrate plants, it seems to me you naturally would have some idea in your own mind as to how the Government could get out of the operation of this project and turn it over to commercial uses and get back at least a part of the investment, and I would like to have your idea about the separation of the two projects.

Colonel BARDEN. Well, that involves a question of policy as to what——

Mr. CRAGO (interposing). Assuming the Government is willing to complete this project with its own money, but that the Government has no desire to engage either in a power project or in a commercial-fertilizer project, on its own initiative, but wanted to put this in the hands of people who would utilize the power and also utilize the nitrate plants.

Colonel BARDEN. My idea was that by that method of analysis you would be able to reach perhaps a more definite and correct conclusion as to the value of Mr. Ford's offer. Not that I mean to say that somebody else would come along and offer something better, but it seemed to me that if in the consideration of his offer you could say, "Well, he ought to have offered us so much for the dam and that will be so much, and then he has offered us so much for the nitrate plants," then you could subtract the offer for the dam from his total offer and say "Now, is this enough?"

The CHAIRMAN. He has not offered anything for the dam.

Mr. CRAGO. He leases the dam.

Colonel BARDEN. In a way, he has.

The CHAIRMAN. He offers a certain amount of money for upkeep.

Mr. CRAGO. Let me call attention to the fact that there was one thing that Mr. Mayo was absolutely certain and positive that they would not do, and that was to undertake to keep up the dam and locks themselves. He stated that they would give a lump sum, but under no circumstances would they agree to keep them up themselves.

Colonel BARDEN. I would like to say for Judge Parker's information that when we said we felt the gates would probably have to be renewed perhaps every 25 years, there are certain other parts that were included in that estimate of $26,000 that would not have to be renewed, and perhaps only the gates would alone have to be replaced.

The CHAIRMAN. What are those other parts?

Colonel BARDEN. Well, there are certain castings embedded in the masonry which will probably last indefinitely.

Mr. MILLER. Colonel, I would like to ask you one question. There has been considerable discussion as to the amount of primary power to be generated at Dam No. 2; that is, power available 365 days in the year. What is your estimate of the minimum primary power there?

Colonel BARDEN. There is a gauge at Florence which has been there for over 50 years, and the lowest reading of record on that gauge is minus 0.8. That corresponds to a flow of 8,200 cubic feet per second, which would be 71,800 horsepower. Very unfortunately, in the low-water year of 1904, there was a

period when the gauge was incorrectly read or the records are dubious. By making a comparison with the readings at other points during that period, it is our opinion that during that low-water year of 1904 there was probably a period of about nine days when there was somewhat less than this 71,800 horsepower, but we can not be certain about that. We have taken as the primary power the figure of 87,300 horsepower, which corresponds to a flow of 10,000 cubic feet per second, which has been available for 99.4 per cent of the time for 50 years. In other words, in 50 years there have only been 101 days in which there has been less than 87,300 horsepower, so that we think that is a very conservative statement to make as to the primary power, and that even 100,000 horsepower, which has been available for 97 per cent of the time for 50 years, would be a reasonably safe figure to use; but in all of our computations we have used 87,300 as the primary horsepower.

Mr. MILLER. And the primary power at Dam No. 3 would be about 34,000 horsepower?

Colonel BARDEN. About 34,000; yes, sir.

The CHAIRMAN. Colonel, we will now be very glad to hear any further statement you may want to make.

Colonel BARDEN. Some one asked me yesterday what our total pay roll was and I gave the correct figure of about $15,000 or $16,000 for our own employees, and about $10,000 for Colonel Cooper's, making a total of about $25,000. There are some other expenses that would perhaps amount to about $5,000 or $10,000, so that our total expenses are between $30,000 and $35,000 a month. I wanted to make that perfectly clear.

Mr. JAMES. I asked you that question and the only reason I asked it was to show the difference between your pay roll and his.

Colonel BARDEN. Yes, sir; I thought that was it, but I thought perhaps some member of the committee might have gotten the idea that that was the total expense of caring for the work.

What I would now like to do would be to try to convince some of the members of the committee who may not at present be convinced, of the advisability of completing Dam No. 2, even if they can not see at the present time an ultimate disposition of the whole project which would be satisfactory; and if I could convince them of that, then I think it would follow that an appropriation for carrying on the work would be very desirable for immediate use.

Some $17,000,000 has already been spent or obligated, and the work is one-third completed. What navigation facilities previously existed have been destroyed and the river is now permanently blocked.

The primary power developed by Dam No. 2, based on a 50-year gauge-reading record would be 87,300 horsepower. This has been available 99.4 per cent of the time for 50 years. In other words, there were only 101 days in that period when a less amount was available. This is not the absolute minimum, but is a very conservative statement; 100,000 horsepower, which has been sometimes mentioned as the primary power, would be available 97 per cent of the time; 141,000 horsepower will be available 83.3 per cent of the time, or 10 months per year; 205,000 horse power will be available 66.7 per cent of the time or 8 months per year; 306,000 horsepower will be available 50 per cent of the time or 6 months per year; 438,000 horsepower will be available 33⅓ per cent of the time or 4 months a year; 600,000 horsepower will be available 21 per cent of the time or 2½ months per year. Of course, there is very much more power available at certain times of the year, but there is not proposition to use any such amount.

The value of the secondary power is naturally much less than that of primary since it can not be absolutely depended upon either as to time or amount.

Installations of hydroelectric machinery are usually made slowly as the market develops and a load is built up. In this instance it does not appear to be advisable to install more than about eight units at present, and probably the four units already purchased should be installed and tried out before additional contracts are made. The development of water turbines is progressing rapidly and it is quite possible that still more powerful and efficient machines would be available in a very few years. Tail race excavation, draft tubes and power-house substructures would be completed for the total, ultimate installation of 18 units.

Our estimate of the cost of completing the work on this basis is as follows: For 4 units, $20,849,000, 8 units, $23,177,000; and 18 units, $28,387,000. The estimate of the Chief of Engineers for the 18 units is $25,000,000, which is about a 12 per cent reduction. On that same basis, the estimate for com-

pleting eight units would be $20,400,000 and for four units, $18,347,000. The four units would develop all the primary power and a small portion of the secondary power, amounting in all to 120,000 horsepower, and the eight units, which is what I am proposing, would develop 240,000 horsepower, or all the primary power and the secondary power down to about seven months.

I wish to emphasize the fact that these estimates have been made on a very liberal basis with a view to covering all sorts of contingencies such as are liable to occur in work in river beds. I believe that they will be ample under unfavorable conditions and that a material saving would be made if everything went well.

In kilowatt hours we would have per year for the primary power on a 100 per cent load factor, that is on the assumption that it is all used, in round numbers, 570,000,000; on an 80 per cent load factor, 456,000,000, and on a 60 per cent basis, 342,000,000; and for the secondary power we would have similarly, 745,000,000 for a 100 per cent load factor, 596,000,000 for an 80 per cent load factor, and 447,000,000 for a 60 per cent load factor.

I believe there is no doubt that this power can be sold at the switchboard to distributing companies, either those now in business or perhaps new ones, at a price sufficient to pay a reasonable rate of interest on the cost of completion, and, as the value of power increases, in course of time on the money already spent.

To give the committee some idea as to why I believe this is so, I have here the schedules charged for electric power to consumers by the various companies in the South, and all these schedules are approved by the rate-regulating bodies of the various States. I have those for the State of Georgia; for the Southern Power Co., which is in North Carolina; for the Alabama Power Co., in Alabama; and the Tennessee Power Co., in Tennessee.

The CHAIRMAN. Will you put those in the record?

Colonel BARDEN. Yes, sir.

Schedule for electric power of Georgia Railroad & Power Co., approved by the Railroad Commission of Georgia September 22, 1920.

Schedule K: Primary hydroelectric rates, industrial; applicability, all territory served by the company.

Service charge: $1.11 per kilowatt of maximum demand per month, plus an energy charge as follows:

Kilowatt hours per month:	Cents per kilowatt hour.
For the first 10,000	1.44
For the next 10,000	1.22
For the next 10,000	1.00
For the next 20,000	.80
For the next 50,000	.70
For all over 100,000	.60

Minimum monthly charge, kilowatt of maximum demand charge.

Discount: Bills based upon the foregoing rates are subject to a discount of 10 per cent of the total thereof when paid on or before the 10th day of the month.

Schedule for electric power of Southern Power Co., rate effective July 16, 1919.

[Textile primary power, day.]

Kilowatt hours per month:	Cents per kilowatt hour.
First 50,000	1.2
Next 50,000	1.15
Next 50,000	1.10
Next 50,000	1.05
Next 100,000	1.00
Next 100,000	.95
Next 100,000	.90
Next 250,000 and all over	.85

Schedule for electric power of Alabama Power Co., rate effective May, 1920.

Kilowatt hours per month:	Cents per kilowatt hour.
First 1,000	3.0
Next 4,000	2.0
Next 15,000	1.0
Next 30,000	.9
Next 50,000	.8
Next 100,000	.7
Next 100,000	.6
Next 300,000	.5

Consumer shall pay a charge of $1.50 per kilowatt per month for first 100 kilowatts $1.25 per kilowatt per month for next 4,900 kilowatts and $1 per kilowatt per month for all over 5,000 kilowatts.

Schedule for electric power of Tennessee Power Co. rate filed February 5, 1920.

Kilowatt hours per month:	Cents per kilowatt hour.
First 500	5.0
Next 1,000	3.0
Next 8,500	1.5
Next 25,000	1.0
Next 165,000	.8
Next 400,000	.6
All over 600,000	.5

Demand charge: $1.50 per kilowatt of demand per month.

Minimum charge: $1.58 per kilowatt per month of the highest demand of the previous six months, but not less than $1.58 per kilowatt per month of the demand contracted for.

Colonel BARDEN. I would like to call attention to the fact that the lowest rate quoted by any of these companies for delivered power is 5 mills per kilowatt hour for the energy charge. In addition to that there is what they call a demand charge. Consumers have to pay anywhere from $1 to $1.50 per kilowatt of power that is delivered.

Mr. PARKER. Per year or per month?

Colonel BARDEN. Per month. This, I think, will average 50 to 75 per cent of the energy charge. So that in addition to the 5 mills energy charge, the demand charge would probably bring the total charge on an average to at least 8 mills. As substantiating that, I think the Chief of Engineers told you that the Southern Power Co., or one of the companies, said that the average price that they received for power was 9 mills. That, of course, is for power delivered.

Mr. PARKER. How much is that per horsepower per year, or can you reduce it to horsepower?

Colonel BARDEN. Yes, sir. That is $59.13 or nearly $60. Just as an illustration of what they get for the month of February, our own bill for electric power was $600 for the demand charge and $644 for the energy charge, or 16 mills per kilowatt hour. So I think that 8 to 9 mills is certainly a fair value of the price delivered to the consumer.

The CHAIRMAN. The Government is now paying 1.6 cents per kilowatt hour?

Colonel BARDEN. Yes, sir; for the small amount of power we get. Of course, the larger the amount of power the smaller the rate.

Mr. CROWTHER. What do you use power for now, just lighting?

Colonel BARDEN. That is practically all. We have a little refrigerating machine and one or two other small motors.

Mr. WRIGHT. May I ask where this power is furnished the cheapest, according to your schedule?

Colonel BARDEN. They are very much the same. For instance, the lowest rate for the Alabama Power Co. is 5 mills, and the lowest rate for the Tennessee Power Co. is 5 mills. The lowest rate I have here for the Southern Power Co. is 8½ mills, practically.

Mr. WRIGHT. What about the Georgia Railway & Power Co.?

Colonel BARDEN. Six mills. As I say, that price of 8 or 9 mills is the price delivered. Of course, the Government would not expect to go into the business of delivering power, but would expect to sell it at the switchboard and the cost of delivery is certainly less than the cost of generation, so I figure we could sell this power on a 60 per cent load factor at 4 mills for the primary and 1.4 mills for the secondary. That would give us a revenue of approximately $2,000,000 per year, which is practically 9 per cent on the $23,177,000 required to complete.

The CHAIRMAN. In other words, you could deliver it cheaper than any company is delivering it at present?

Colonel BARDEN. I would suggest simply that we sell it at the switchboard at these rates; that is, at less than half of the average price of 9 mills that these companies are getting for delivered power.

The CHAIRMAN. You say some of them are getting only 5 mills?

Colonel BARDEN. That is only for the energy charge. In addition to the energy charge, there is a demand charge which brings it up to probably 8 or 9 mills, on an average. Now that, as I say, would give 9 per cent on $23,177,000 required for completion of the dam, and would allow the very ample amount of 5 per cent for operation, depreciation, etc., and 4 per cent interest on the money.

In addition to this, there is a steam plant there which, if operated, would increase the primary power from 87,300 to 167,300. As a business proposition, if the Government were going to sell the power from the dam, it would also operate that steam plant and convert 80,000 of the secondary power into primary power, making the total primary power 167,000 horsepower per annum. Now, I figure that the total cost to the Government per year to do that would be the 9 per cent on the $23,177,000 that I have already given, or $2,086,000, plus the cost of operation of the steam plant, and I would like to show you how liberally I have figured on that. They tell me the cost of operating that plant per month would be $15,000 for labor, $172,800 for coal, and $12,200 for miscellaneous supplies a total of $200.00 per month for full operation.

Now, in order to convert this 80,000 secondary horsepower into primary power by the use of this steam plant, we would not have to operate that plant more than about two and a half months in the year, so that I figure the cost of operating the plant per year on that basis would be, labor, three months, at $15,000, or a total of $45,000. Then we would have to keep a certain proportion of the force the year around because we could not afford to discharge them all, and I have allowed $30,000 for labor for the rest of the year, making a total labor charge for the year of $75,000. The total coal charge for the year is taken at three times $172,000, or about $500,000, and that for miscellaneous supplies, $25,000. In other words, for the actual operation of the plant for three months and the maintenance of a small force there for the remainder of the year, $600,000. I think that is a very liberal figure. For depreciation and obsolescence, I have taken 4 per cent on a valuation of $9,000,000 for the plant. The Ordnance Department told you that they estimated a salvage value of only $6,000,000.

Mr. MILLER. And the cost was $12,000,000?

Colonel BARDEN. Yes; that is correct. But they have estimated the salvage value at only $6,000,000. I think that is low, and to be on the safe side I have taken $9,000,000 and have taken 4 per cent of the $9,000,000 for depreciation and obsolescence and then added another 4 per cent for interest.

The CHAIRMAN. I think they gave us an estimate of $8,000,000 for the salvage value but that included more than the plant.

Colonel BARDEN. Yes; I think for the plant alone they made an estimate of $6,000,000.

The CHAIRMAN. They estimated $8,000,000 as the salvage value of everything.

Colonel BARDEN. Yes; that included all the nitrate plants, and I am just speaking of the steam plant alone.

My understanding is that $100 per horsepower would be a fair price for the installation of a big steam plant, which for an 80,000-horsepower plant would be $8,000,000. If it had to be replaced at the present time, I doubt if it could be done for less than $8,000,000. Anyway, I have taken a total of 8 per cent for depreciation and obsolescence and interest, making $720,000, and have added to that $600,000 for operation or a total of $1,320,000 per year for the outlay for that plant, plus $2,086,000 for the dam, which gives a total of $3,406,000

per year. Now, for 167,300 primary horsepower that is only $20.30 per horsepower per annum. Colonel Cooper gave you lower figures for the cost of operation and maintenance and depreciation of the dam than I have given. Instead of using about 5 per cent, his figures amount to about 3 per cent or a total of 7 per cent on the $23,177,000. If those figures are taken it would bring the cost of this horsepower down to $15.20 per year, so that probably somewhere between $15 and $20 would be a fair price per horsepower per year for the 167,300 primary horsepower that would be available from the dam and the steam plant combined.

Now, that is cheap power, and the people in that territory are paying much more than that at present. The manager of the Tennessee Copper Co. told me they had a contract made some years before the war for 5,000 horsepower at $25, and that during the war when the prices went up, by agreement with the Tennessee Power Co. they voluntarily raised that to $40, and are now paying $40.

Mr. PARKER. Your price of 4 mills at the switchboard would only amount to about $23 per horsepower, would it not? I have reckoned out that 1 mill per kilowatt is $8.76 per year and five-sevenths of that is $6.26 per horsepower, so that at 4 mills you would get about $25 per horsepower, and you say it costs you about $20.

Colonel BARDEN. That is practically correct.

Mr. CROWTHER. But some of those concerns sell it for as high as $60 per horsepower per year.

Colonel BARDEN. Yes, sir; and out in California they get $120.

Mr. PARKER. At the switchboard?

Colonel BARDEN. No; delivered.

Mr. PARKER. I am talking about prices at the switchboard.

The CHAIRMAN. In California, and in the West generally, they have to go to very great expense in developing the power.

Mr. MILLER. And have to transmit it a long distance.

Colonel BARDEN. Now, I want to show that there is a market for this power. The total kilowatt hours per year available from this installation (Dam No. 2) would be 1,316,000,000 in round numbers on a 100 per cent load factor and 789,000,000 on a 60 per cent load factor. The letter from the Tennessee and Georgia power companies to the Chief of Engineers, quoted in the testimony before this committee, say that the demand for power in the southeastern territory would absorb 500,000,000 kilowatt hours by 1927. The report of General Keller on "The Power Situation during the War" estimated that 1,000,000,000 kilowatt hours would be needed in from five to seven years, and the brief of the Alabama Power Co., which they have recently submitted, page 14, says that 500,000 additional horsepower will be needed by January, 1926, which would be 1,960,000,000 kilowatt hours at a load factor of 60 per cent, or more than what we have. In other words, I do not think there is any question that within the next five or ten years will be an ample market for all of the power from the installation now proposed.

All of this takes no account of the navigation feature, and some credit should be allowed for that part of the project. The actual cost of putting in these locks over what it would be to put in a straight dam right into the bank with no locks at all would be $2,860,000 for Dam No. 2, so certainly at least that amount, if not more, should be subtracted from these costs for power, or a little over 10 per cent.

If, then, my view is correct as above stated, that the dam can be completed and the power sold at a profit, even if none of the present offers were accepted; or in other words, that no risk is run in completing it, it is certainly very desirable that we be allowed to go ahead at once. As before stated, unless we can begin promptly, this low-water season will be lost and the completion postponed another year. The construction plant and particularly the cofferdams and temporary buildings of all kinds depreciate at the rate of approximately $400,000 a year. An appropriation for immediate work would not interfere with the acceptance of any offers now under consideration, but will save a year in time and approximately $400,000, and seems the only logical thing to do, unless the work already done at a cost of some $17,000,000 is scrapped and the river left blocked, a plan which it hardly seems to me should receive any very serious consideration.

Mr. MILLER. In connection with the figures Colonel Barden gives, I want to refer to the contract of December 1, 1917, between the United States and the Alabama Power Co., by which the Government was to pay the Alabama Power Co. 6½ mills per kilowatt-hour, and we furnished the plant.

Mr. CROWTHER. And 2 of it was to be paid back, so that they only got 4 mills.

Mr. MILLER. Oh, no.

The CHAIRMAN. That is all in the record.

(The committee thereupon adjourned until Monday, May 1, 1922, at 10.30 o'clock a. m.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Monday, May 1, 1922.

The committee met at 10.30 o'clock a. m., Hon. Julius Kahn (chairman) presiding.

STATEMENT OF MR. HUGH L. COOPER, NEW YORK CITY.

The CHAIRMAN. Gentlemen, Mr. Cooper is here this morning, and we will be very glad indeed to hear him in regard to the matter about which he wrote to the chairman of the committee.

Mr. COOPER. Mr. Chairman, I would like to be sworn, if I can.

The CHAIRMAN. Well, we do not do that before this committee. We assume that every man is telling the absolute truth, and so we have never in this committee taken occasion to swear the witnesses.

Mr. COOPER. Well, Mr. Chairman and gentlemen, I would like to say that I would be very glad to be sworn on the testimony I am to offer here to-day, and that there is nothing confidential about anything I say, and I do not care who knows what I say.

The matter that I asked to be heard upon was the question of what my compensation was, and I had heard that there was some idea around somewhere that I was securing a great profit out of this, and it seemed to me that the best thing to do was to come down here and show the contracts and tell everybody how they came to be executed and tell also what the relationship between these contracts that I have with the Government is to the contract that I have with private capital for the same work.

At the time the Chief of Engineers asked me to undertake this work he did so because, I think, more than anything else, I had started the work while I was in the service as a colonel of Engineers. During that time I had made a radical change in the design of the dam, and in order that the committee may, at their leisure, examine what that radical change was I am going to file with the committee a report which I made on March 29, 1918. That report will show in detail the radical change that I made in the design of the Wilson Dam when I was in the service and tell why I made this change, and, with the chairman's permission, I would like to file this copy.

The CHAIRMAN. You may file it, and it will be put in the record.

(The statement referred to follows:)

MUSCLE SHOALS PROJECT. RECOMMENDATION NO. 1 TO BRIG. GEN. CHARLES KELLER RESPECTING CHANGE IN HEIGHT OF DAM NO. 2.

NEW YORK, *March 29, 1918.*

From: Col. Hugh L. Cooper, Corps of Engineers, National Army.

To: Brig. Gen. Charles Keller, Corps of Engineers, National Army, Washington, D. C.

Subject: Recommended changes in design of Dam No. 2, Muscle Shoals project, as illustrated in House Document No. 1262.

SIR: 1. General studies of the data supplied by House Document No. 1262 and relating especially to the design and construction of Dam No. 2 at Muscle Shoals, on the Tennessee River, conclusively show that an error in pool levels has been made and that a change in said pool levels should be made at this time. The construction program which is now being composed for this work will require, necessarily, that the pool levels be now definitely determined and the resulting widths of the main dam similarly be definitely determined.

2. Attached hereto is a sketch illustrating the outlines of this dam as proposed by House Document No. 1262 and here designated section A, and the recommended section which is designated section B. Section B is subject to such minor changes as future studies of the local conditions may require, but these changes, if any, will not be of sufficient magnitude to have any bearing on the recommendations herein made and the reasons therefor.

3. It is recommended that the high-water level at Dam No. 2 of 513, as required for section A, be reduced to elevation 500, as shown for section B.

4. That, in accordance with the recommendation in paragraph 3, the crest of the dam be lowered from elevation 500, section A, to elevation 486, as shown on section B.

5. That section B be provided with a system of piers and arches approximately as shown in the sketch, the purpose of the piers being twofold, first to support a stony gate system for the maintenance of a constant pool level of approximately elevation 500 behind Dam No. 2, and, second, to support approximately 90 arches, which arches are to be used for gate-operating machines and also as a permanent highway 20 feet wide to connect the north and south shores of the Tennessee River, thus making available a bridge across the Tennessee whose overall length will be approximately 3,300 feet.

6. The change recommended is submitted because its adoption will make available for the benefit of the finished structure the following advantages:

(*a*) The foundations for all of the structures at Dam No. 2 in the Muscle Shoals development will be limestone, and the banks of the river are likewise limestone, showing every evidence that at least on the south bank of the river, and probably on both banks and also in the bed of the river, the establishment of new pressures will undoubtedly create numerous springs and underground flows in this vicinity, the existence of which while not necessarily threatening the safety of the structures built thereon, may be extensive enough in character to sensibly affect the low-water flow of the stream and also to be an annoyance to the structures themselves. A special report on the subject of the character of these foundations will be filed for record some time during the month of May. The reduction in the pressure on the foundations here proposed amounts to 14 feet, which is approximately 13 per cent. Any change in a design that will reduce the pressures as much as 13 per cent is worthy of serious consideration.

(*b*) The adoption of section B and the reduced head thereby resulting will not affect the practical power-producing capacity of the plant at all. In other words, the number of kilowatt-hours per annum that will be practicable of development will be the same using section B as would be the case if section A were used. If section A is built, the theoretical head on the turbines in high water would be 79½ feet; in low water the head would be 94 feet. If section B is used, the operating head in high water will be 68½ feet, and in low water 94 feet. The turbines will naturally be designed for the highest efficiency at 94 feet head and approximately 0.8 gate. It is entirely feasible to provide a turbine developing maximum efficiency at 0.8 gate and 94 feet head whose rated output will be available at 68½ feet head at a lesser efficiency of no consequence, because at the time the head is reduced the quantity of water available is more than correspondingly increased.

(*c*) On the basis that the unit costs mentioned in Document No. 1262 are increased as per your estimate of October 6, 1917, the recommended section B will cost about $260,000 less than section A and at the same time provide a first-class bridge across the Tennessee River, whose probable cost would be approximately $900,000. The construction of Dam No. 2 will undoubtedly have a marked effect upon the manufacturing community in this vicinity, making necessary almost at once the availability of a new bridge across the Tennessee River, not only for a better management of the navigation side of the improvement, but for the general benefit of the community, and it is estimated that a change in the design so as to provide for a satisfactory bridge would be worth very serious consideration even if the change would entail a considerable increase in the cost of the structure.

(*d*) The adoption of section B will create a constant pool level at Dam No. 2, thus relieving the top lock chamber of 11 feet of water pressure and the cost thereof and the troubles to navigation incident thereto.

(*e*) The creating of practically a constant pool level back of Dam No. 2 will similarly simplify and reduce the cost of the lock system past Dam No. 3, and this paragraph and the paragraph just preceding present strong reasons for making the change.

(*f*) One of the serious difficulties to be overcome in the construction of this structure relates to a proper apron below the dam and a reduction of 13 feet in the total distance that surplus waters fall over the ogee section of the dam is a relief to the apron that is important and valuable and should be availed of.

(*g*) It will be noted that sections A and B are figured for practically the same stability, except that the recommended section B under the most severe conditions is slightly stronger than section A.

(*h*) You will note in the sketch there is indicated a drainage tunnel close to the average bed-rock line. The drainage system to be recommended will not to be decided upon until after a further study of the foundation question, and it may be necessary to use the drainage tunnel in the location shown in the sketch together with additional drainage distributed between the top and bottom of the dam. This drainage question will be made the subject of a special report after the completion of further studies relating to this very important element.

(*i*) The construction of Dam No. 2 will undoubtedly be followed by the early construction of Dam No. 3, and it is believed that it would be a serious mistake if the designs for Dam No. 2 unnecessarily reduced the value of Dam No. 3 from any standpoint. The levels adopted for Dam No. 2 reduce the head in high water at Dam No. 3 unnecessarily by 10 feet. The operating heads available at Dam No. 3 as called for by Document No. 1262 are as follows: In high water, 25 feet; in low water, 40 feet. This produces a ratio of 60 per cent between the low water, 25 feet, and the high water, 40 feet, and such a ratio is difficult to overcome in turbine design and would require the construction of additional turbine capacity to maintain the station output at times of high water. If Dam No. 2 is built as per section B, the high-water head at Dam No. 3 will be 35 feet and the low-water head will be 40 feet, thus producing admirable power conditions.

(*j*) The use of section A levels would make very difficult the construction of Dam No. 3, because of the extra depth of water that would obtain during construction stages. The adoption of section B will provide a method of reducing to a minimum all of the construction hazards and greater costs that would otherwise be imposed upon Dam No. 3 by the excessive backwater from section A.

7. Reasons why section A should be retained: None.

8. Conclusion: Inasmuch as Dam No. 2 can be changed as per the recommendations above itemized and many important advantages can be brought into commission by the change, including a saving in cost and the creation of a valuable bridge between the two shores, making a practical added value of $1,160,000 by the adoption of this recommendation, and as there seems to be no sound reason for section A, the recommendations herein submitted are without reserve.

Respectfully,

_____ _____.

Mr. COOPER. It is an entirely different dam from what they started out to build. The dam they are now building at Muscle Shoals is entirely different from any dam that was ever proposed previous to my going on the work, and this piece of paper I am putting in here tells you why.

After I had filed this report I was ordered back to France because of a cable from General Pershing, and during the time that I was in France the work was progressed somewhat at Wilson Dam. When I came back from France and when the war was over the Chief of Engineers, realizing that he was carrying out a structure that some one else had designed, asked me to take it over and be the designer of the work under his direction, and I am the designer of the work under his direction, and I am responsible for the execution of the work under his direction, and I represent the Chief of Engineers when I am on that job. Now, that brings the history of this matter up to date.

The CHAIRMAN. Colonel, possibly you can give the exact date when you went to work on the Muscle Shoals Dam?

Mr. COOPER. The second time?

The CHAIRMAN. No; the first time.

Mr. COOPER. March, 1918.

The CHAIRMAN. You went there before that, didn't you?

Mr. COOPER. Oh, no.

The CHAIRMAN. At the beginning of your statement you said that you had made certain changes from the time you went to work on that project. You did not state the date at that time, so I thought it was an earlier date than March, 1918.

Mr. COOPER. My first connection with the Wilson Dam in any capacity whatsoever was in March, 1918. At that time the Government engineers, under Major Burgess, had adopted certain plans, which I had entirely changed over, with the concurrence and acceptance of the Chief of Engineers. Mind you, that passed through two Chiefs of Engineers, one of them was General Black, and at the time I took it over, and it was he who was Chief of Engineers and not General Beach. He came along afterwards. When General Beach asked me to take this thing over, I told him that I would be glad to take it over on the same basis that I did work for private capital, except that I would not charge any profit to the Government.

Mr. GREEN. At this time you were out of the military service?

Mr. COOPER. Absolutely. Now, if there is anybody here who has any doubt as to the exact meaning of what I have just said, I would like to be cross-examined upon it or asked about it.

Mr. CRAGO. If you got 60 per cent over and above the pay roll, would not that be a profit?

Mr. COOPER. No. I will come to that later and tell you exactly what the situation is.

Mr. MCKENZIE. I would like to ask you a question, Mr. Cooper. You say you went to work down there in 1918.

Mr. COOPER. Yes, sir.

Mr. MCKENZIE. On the first plans?

Mr. COOPER. Yes.

Mr. MCKENZIE. Do we understand that since that time you have changed your own plans?

Mr. COOPER. Not in the slightest.

Mr. MCKENZIE. You provided for an additional heel in your original plans, which was spoken about here the other day.

Mr. COOPER. I do not remember about the details of the heel; but nearly every dam has a heel if you can get one, and you can not tell much about the heel until you get into the excavation. You can not tell anything about it in limestone.

Mr. MCKENZIE. One of the statements of Colonel Barden was that one of the important changes you made after becoming consulting engineer was to provide for a very considerable extension of what he called the heel of the dam.

The CHAIRMAN. And the widening of it also.

Mr. MCKENZIE. The point I am bringing out is that when you drew the original plans, which you have stated now you did, why did you not think of that then?

Mr. COOPER. For the reasons I have just given you. You never can tell anything about the need of a heel or the size of it until you get the bottom uncovered; and at the time I made the design in 1918 there was not any of the bottom uncovered.

Mr. MCKENZIE. If you had made these plans and turned them over to somebody else, and then left the country entirely, in your judgment, the construction of that dam would have been a failure; is that true?

Mr. COOPER. No; I do not think that is a question that anyone could answer, because——

Mr. MCKENZIE (interposing). In other words, it would have been fatal, in your judgment, viewing it from your knowledge now, if the Government had proceeded to construct the dam on your original plans?

Mr. COOPER. No; that does not follow at all.

Mr. MCKENZIE. You simply figure that the widening of the heel will add additional strength, and, after further consideration of these plans, and being more familiar with the character of the bottom of the river, you have advised that very material change.

Mr. COOPER. Yes, sir.

Mr. MCKENZIE. Which adds very greatly to the strength.

Mr. COOPER. Well, the first thing it does, it guarantees safety, and it does not go beyond the ordinary rules of safety. I think in the building of any dam the first thing to do is to make it safe. That is what all engineers do who have had any experience in this class of work.

Mr. MCKENZIE. That would be the only criticism of your original plans?

Mr. COOPER. I think if you were to enter into that field, Mr. McKenzie, you would find that that is hardly warranted, because, as I just told you, you can not tell anything about the heel of a dam until you see the stuff upon which the dam is to be built.

Mr. GARRETT. Is the heel always necessary, regardless of the formation?

Mr. COOPER. Oh, no. The heel is necessary where the rock is specially smooth and water-worn, as it is in this particular case. If it is rough rock, like granite, you do not need a heel to the same extent that you do in the other case.

Mr. GARRETT. Would you not need it to some extent in any event?

Mr. COOPER. That gets you right out into the question of the character of rock. I have built dams where we did not use any heel at all. I built one, a very large one, in South America, 20 years ago where it was on granite, and the whole foundation was so rough that we did not need any heel, and we did not build any, and, of course, the dam is still there.

Mr. GARRETT. The purpose of the heel is to keep the dam from slipping?

Mr. COOPER. That is the principal purpose.

Mr. GREENE. I gathered from your introduction that you went down to take charge of this work after it had already got under way somewhat.

Mr. COOPER. Yes.

Mr. GREENE. Was the original work undertaken on your plans, or did you come in with new plans then?

Mr. COOPER. The original work prior to 1918 was undertaken on Burgess's plans.

Mr. GREENE. So that this change which you refer to——

Mr. COOPER (interposing). Was entirely due to recommendations of mine.

Mr. GREENE. Exactly; and that included the heel?

Mr. COOPER. Yes, sir; the heel developed under those changes.

Mr. GREENE. So you were not changing your own plans.

Mr. COOPER. No.

Mr. HULL. What was the date, Colonel, when you became consulting engineer?

Mr. COOPER. I think it was about October, 1920. The contract bears date of October 1, 1920.

Mr. MCKENZIE. I would like to ask you one further question in connection with the statement you made in reply to Mr. Greene. You were employed the second time in 1920, as I understand you?

Mr. COOPER. Yes.

Mr. MCKENZIE. Subsequent to that time, you have recommended this change?

Mr. COOPER. The change of what?

Mr. MCKENZIE. In the construction of the dam.

Mr. COOPER. Oh, no; the change was recommended in 1918, and I have here a copy of the original paper, and you will find all of these papers in the War Department.

Mr. HULL. At that time you not only recommended a change, as I understand it, in the heel of the dam but in the entire——

Mr. COOPER (interposing). In the entire design of it.

Mr. HULL. So you did not change your own plans at all?

Mr. COOPER. No.

Mr. GREENE. That is what I wanted to get at. When you made your first entrance upon the work as its director or engineer, you then started with the first and only plans you had ever made about it?

Mr. COOPER. Those general plans made in 1918 have not been materially changed since that time.

Mr. GREENE. That was your first planning in the work, and at that time you introduced this question of the heel and the width?

Mr. COOPER. I introduced a design that finally worked out the need of a heel.

Mr. HULL. At that time, in 1918, there had been practically no work done on the dam?

Mr. COOPER. No. There had been some preparation in the way of construction plant, but, as I remember it, we were not out in the river. I am very sure of that.

Mr. JAMES. How long after you were mustered out of the service were you working at the Wilson Dam?

Mr. COOPER. Well, I would not want to say, Mr. James, but I think I made two or three trips down there informally. It must have been a year after that before I went down there. I can look it up. I would rather not make any statement about dates unless I know for sure what I am asked and then go and look it up. It is all a matter of record, and the Chief of Engineers can tell you all about it.

Mr. PARKER. I did not understand what you said it was a year before. They asked you about being mustered out.

Mr. COOPER. I was mustered out in the fall of 1918.

Mr. QUIN. You were mustered out just about the time of the armistice.

Mr. COOPER. I was mustered out, as I remember, about two months or one month before the armistice.

Mr. QUIN. That was about September, then?

Mr. COOPER. Yes, sir.

Mr. JAMES. Were you ordered home from France to work on this job?

Mr. COOPER. No; I was ordered home to look after some special apparatus which we expected to get to use at Talmont, in France, where I was going to build a large dock, if the war had gone on.

Mr. JAMES. Then you were not ordered home on this job.

Mr. COOPER. No; not at all.

Mr. JAMES. In your testimony before you said, "When I was in the service in France I was ordered home by somebody; I do not know who it was; I suppose it was the Secretary of War, to build this job."

Mr. COOPER. That was another ordering home. My testimony is quite correct, Mr. James. That was the time I was ordered home in March, 1918.

Mr. JAMES. Then you were sent back again and ordered home again?

Mr. COOPER. Yes; quite so.

The CHAIRMAN. You may proceed, Mr. Cooper.

Mr. COOPER. When the Chief of Engineers asked me about this question of pay, I told him what our private practice fees are, and I want to put in the record to-day what they are also, because I think it is high time that all of this story was told. In my practice, extending over many years, we have two grades of service to perform for private capital, one is investigating work and the other is the responsibility incident to actual design and actual construction, two very distinct and different clases of service; one to go out and investigate a project and tell what you think about it, and the other the assuming of responsibility of its designing and execution, either by contractors or by day labor. Now, in private practice you get—I get, I am going to just tell you about myself. I do not know what the other fellows do. I get about 6 per cent of the total cost of a job for the responsibility of designing it and executing it; that is, 6 per cent of the total cost, and I got more than that at Keokuk because it was a special design.

Now, the secondary charges are always very much less than that, because the responsibility of just investigating is nowhere near as great as is the responsibility of actually designing and taking the responsibility of saying that that is safe, etc. In my private practice for investigating work for some years, and previous to this contract that I am talking about to-day, my charges were $250 a day for my services and all expenses. That is one item. The next item is pay for all the labor that is hired and 60 per cent on top of that to take care of all overhead expenses in the business.

Mr. GARRETT. Are you still talking now about your preliminary employment?

Mr. COOPER. Yes, sir; I am still talking about that, and I hope any gentleman here who fails to get a very clear idea of what I am trying to say will interrupt me just as much as he pleases, for I would like to be interrupted until we get the truth of it.

Mr. GARRETT. Acting upon that invitation, I will ask you a question. In your preliminary work—that is, in reporting on an examination—you start out with yourself and a corps of men.

Mr. COOPER. Yes.

Mr. GARRETT. For your individual services you charge $250 a day?

Mr. COOPER. And all expenses.

Mr. GARRETT. Then you have with you, in addition to yourself, a corps of men and for those men you charge what?

Mr. COOPER. Par; whatever their salaries are.

Mr. GARRETT. You charge the salaries of those men up to the——

Mr. COOPER (interposing). To whatever services they are employed upon, for Corporation A, Corporation B, or Corporation C, and on that I charge 60 per cent for the overhead.

Mr. GARRETT. Now, this is before any work is ever begun or before the project is decided upon?

Mr. COOPER. Yes.

Mr. GARRETT. How do you arrive at 60 per cent for the overhead on such preliminary work?

Mr. COOPER. That is 60 per cent on the men's time.

Mr. GARRETT. In addition to what they are paid?

Mr. COOPER. Yes; take an ordinary instrument man who is getting $200 a month; I charge 60 per cent of that $200 to take care of the office overhead, which we find, year in and year out, runs about 60 per cent. In some of the larger concerns, whose names I could mention but will not mention, because it would be unfair, I can tell you that the percentage runs all the way up to 120 per cent. My concern is a little concern and our overhead is small compared with the rest of them. Now, is it plain about what the 60 per cent applies to?

Mr. GARRETT. I think I understand that, and if you will let me, I will state it as I understand it and see if I am corect. When you start out on a preliminary examination and report, you charge for your individual services $250 per day and expenses, and for all the men you carry with you you charge up to the person for whom you are doing the work whatever you are paying those men on your pay roll, and in addition to that you charge 60 per cent more?

Mr. COOPER. Yes; for overhead, which is to take care of all the cost of the instruments that are used, the office rents, the telegrams, and all the supplies and that sort of thing. Now, in private practice to the amount of the salaries plus the 60 per cent I add 25 per cent for profit. That has been the rule for some time, previous to this contract. When the Chief of Engineers came to me about this matter I told him that I would give the Government the benefit of my minimum charge, which was the investigating charge, and pay no attention to the percentage (6 per cent) charge, although I was going to do the very thing for the Government which, in private practice, I get the larger fee, which is the percentage fee; and that in order to get around to something that would be entirely satisfactory to everybody, I would just stick to the preliminary, investigating schedule, and on that schedule I would only charge $40 per day for myself and pay my own expenses, and I would not charge any 25 per cent, but just leave those two items out. Now, you can see from that statement, if it is a true statement, exactly what my relationship with this Government is. Knowing that there would be a time in this thing when there might be some difficulties arise, although I did not know what they would be, that would make it difficult for me to continue to go on for the Government to want me to continue on, I put a clause in this contract, as you are going to see, where it is cancellable on either side on 30 days' notice. You will find that in the contract made a long while ago.

Now, in conclusion, I want to say another thing which I am very anxious to say and which possibly I ought to have said when I was here before, but a man who does not know any more than I do about bodies of this kind is apt to flop around a good deal and not know just what he ought to say and what he ought not to say, because it is voluntary information. I am going to volunteer a statement which I want this committee to take due cognizance of, and that is this: When I made all of these discounts to the Government of the United States, I understood that it was to be a Government piece of work and about six months ago I told the Chief of Engineers in writing that if this job was taken over by Mr. Henry Ford or Mr. Henry Anybodyelse and it became a private contract job in which private capital was going to get a great big profit that I would not serve unless my ordinary fees were applied to the job, and the Chief of Engineers was given notice to that effect. Now, that is not anything new. It is not anything that I have brought out to-day just in the way of snap judgment or what not.

Mr. GARRETT. What you mean by that notice which you have served on the Chief of Engineers is that you are ready to sever your connections with this job if the Government should decide upon some other policy than that which it is now pursuing.

Mr. COOPER. Absolutely; I am ready to quit in five minutes.

Mr. Mr. GARRETT. But up until the present time, or until that time arrives, then your contract stands as it is written.

Mr. COOPER. Yes, sir.

Mr. GREENE. May I interpose there? Does this fee of $40 a day run day by day, regardless——

Mr. COOPER (interposing). Oh, no.

Mr. GREENE. It applies only when you are called to duty?

Mr. COOPER. It only applies when I am called to duty out of New York. This $40 charge has never been as much as the traveling expenses since I have been on the job and I can produce the vouchers to prove that.

Mr. JAMES. Suppose you are unable to go and send somebody else in your place, how much would that person get?

Mr. COOPER. $40 a day.

Mr. JAMES. With expenses or without expenses?

Mr. COOPER. Without any allowance for expenses. I would like to say for the amusement of the committee, possibly, that I have not brains enough to keep an expense account that would pass any auditor in the United States Government, and therefore I stipulated the flat sum of $40 per day. I have not the time to bother reading a mass of statutes to see whether I could take a street car or a hack.

Mr. CRAGO. You have to read the mind of the comptroller sometimes, too.

Mr. COOPER. Yes. Well, I have not the time for that sort of thing either.

Now, the question really before this committee, as I understand it, is whether or no at the time I made this contract the statements I made in the contract were true, with respect to this contract being just the same as I have made with private capital, but with the matter of profit left out. Now, I just want to read two short extracts from that contract.

This is the specific statement in the contract with reference to my pay.

"For the time of Mr. Hugh L. Cooper or any representative designated by him for special examinations or conferences at the Wilson Dam site, Ala., Washington, D. C., or elsewhere, a fee of $40 per day, which will include all traveling expenses of whatsoever kind incident to the services herein specified."

That is the first thing. Now, here is the last thing:

"The actual cost to the consulting engineers of all salaries of all the employees of the consulting engineers actually performing work called for by this contract, plus an overhead of 60 per cent, with no allowance for profit."

Now, here is the crux of the whole matter:

"The foregoing rate and method of charge is current with the consulting engineers in their private practice for determining the actual cost of services rendered."

I would like now to offer this photostat copy of the contract.

The CHAIRMAN. Inasmuch as Colonel Barden has put in a copy of the contract in connection with his testimony, there will be no need to put the contract in the record again.

Mr. COOPER. I would just as soon leave this copy, as it is a photostat copy and has the signatures on it.

The CHAIRMAN. The record will show that you have filed with the committee a photostat copy of the contract showing the signatures attached thereto.

Mr. COOPER. Now, Mr. Chairman, all of the men we employ have to have their salaries fixed and agreed to by the Chief of Engineers before they can be put on the pay roll at all, and that is the way it ought to be. It does not make any difference how much confidence the Chief of Engineers or the Assistant Chief of Engineers may have in me, they reserve, and they should reserve, superior power over all those things, which superpower they have always exercised.

Now, in order that all of the statements that I have made with respect to what is occurring with me in private practice regarding this $250 a day, and with reference to the 60 per cent, and with reference to the 25 per cent might be verified, I asked the Chief of Engineers to send somebody to my office and examine my books and see whether or not I had told the truth and I asked him to do that last week. I asked him to do that also at the time the contract was signed, but his reply was, "Cooper, if I can not believe you in a statement like that I do not want you around here at all," and I said, "That is very complimentary but the books are always there." Now, when this question came up, I called up the Chief of Engineers—no, I called up General Taylor, the Assistant Chief of Engineers—and told him I wanted him to send somebody representing the Government to my office and examine our books entirely and see whether or no the statements in the contract with respect to the 60 per cent and the 25 per cent and everything else were correct. Last Friday the colonel in charge of the New York office sent an auditor to our office. His name is Beran. He has been in the employment of the Government as a special auditor for 12 years. Colonel Burr, in charge of the New York office, made a report to the Chief of Engineers as to what he (Beran) found in my office. This man Beran not only reported what he found, but he made an affidavit before a notary public as to the truthfulness of all his statements. The Chief of Engineers has asked me to file a copy of these findings, which I now do.

(The statement referred to follows:)

UNITED STATES ENGINEER OFFICE,
FIRST DISTRICT, NEW YORK CITY,
New York, N. Y., April 29, 1922.

From: The District Engineer, First District, New York City, N. Y.
To: Chief of Engineers, United States Army.
Subject: Wilson Dam.

1. In accordance with instructions received April 28 over the telephone from Brig. Gen. Harry Taylor, Assistant Chief of Engineers, I have caused an examination to be made of the accounts and records of Hugh L. Cooper & Co., consulting engineers, No. 101 Park Avenue, New York City, N. Y., with respect to the charges made by them for engineering services rendered in connection with the Wilson Dam at Florence, Ala., under their contract made with the Chief of Engineers, United States Army, for the rendition of such services.

2. This examination in detail was made by Mr. Joseph S. Beran, clerk accountant in charge of the finance subsection of this office. Mr. Beran is an experienced accountant, and I have every confidence in his capacity and reliability; nevertheless, in view of the circumstances under which this examination was directed, I have caused him to submit the results of his examination in the form of an affidavit for better verification of the facts desired. The said affidavit is transmitted herewith.

3. Messrs. Hugh L. Cooper & Co. placed at Mr. Beran's disposal all records in their office necessary for the purpose of his examination. The said records were sufficient to verify fully the facts reported by Mr. Beran to the effect that Hugh L. Cooper & Co. have not made any charges against the United States for services in connection with the Wilson Dam other than as provided in their contract, above mentioned, and that they have not included in the said charges against the United States any profits such as it is their custom and the custom of other consulting engineers to charge for similar services rendered to other parties, nor has any charge been made by Hugh L. Cooper & Co. for the services performed by Mr. Hugh L. Cooper or any of his designated representatives as is customary by the Hugh L. Cooper & Co. to charge other private corporations, enterprises, etc., on the basis of $250 per day, or on any other basis except that of reimbursement of actual traveling expenses at the rate of $40 per day.

EDW. BURR,
Colonel, Corps of Engineers.

STATE OF NEW YORK,
County of New York, ss:

Personally appeared before me, the undersigned, a notary public in and for said county and State, Joseph Stanley Beran, of Bogota, 9 Ridgefield Avenue, county of Bergen, State of New Jersey, who, after being duly sworn, deposes and says as follows:

In accordance with instructions given me by Col. Edw. Burr, I visited the office of Hugh L. Cooper & Co., 101 Park Avenue, New York City, on April 28, 1922, for the sole purpose of inspecting and verifying certain matters or facts relative to this corporation's charges to the United States Government for services rendered in connection with the so-called Wilson Dam project, as compared with their charges to other private enterprises or projects for rendering similar services. For this purpose the Hugh L. Cooper & Co. gave me full and free access to their books, records, and files.

A copy of the contract between the United States Government and the above-mentioned corporation, dated October 1, 1920, covering the rendition by this corporation to the United States of the above-stated services, was shown me; Mr. Hugh L. Cooper and Mr. R. D. Edsell, both members of this corporation, assured me that said copy was a true copy of the original contract; this said copy bore original signature of an officer of the United States which is known to me and which satisfied me of the genuineness of this copy of contract. This copy of contract was given my careful perusal and scrutiny.

Further, carbon copies of all bills submitted the United States Government for services rendered under said contract were shown to me. Assurance was given me by the two members of said corporation, as above mentioned, that these carbon copies were exact duplicates of the original bills as submitted the United States Government. Verification of the genuineness of these car-

bon copies of bills and the satisfaction, acceptance, and payment in full by the United States Government of these bills, was made by me by recourse to the proper entries of the amounts of these bills in all books, records, and bank statements. These bills were in full detail and were entirely in accord with the terms of said contract. These bills bore charges only for the payments of salary to assistants, as defined by said contract, plus an overhead charge of 60 per cent thereof, plus reimbursement of traveling expenses of said assistants and expenditures for purchase of certain materials and supplies, plus traveling expenses incurred by Mr. Hugh L. Cooper or representatives designated by him for special examinations or conferences at the Wilson Dam site at Washington, D. C., or elsewhere (which happened to be certain members of said corporation) at the rate of $40 per day only when so actually engaged. No other charges, either for profit or otherwise, were included in said bills.

Further, carbon copies of bills as submitted to three private corporations or enterprises (one a foreign government) were shown me. These three private corporations or enterprises are the only active accounts at this time of Hugh L. Cooper & Co., as indicated by their books and records and as assured me by the two members of this corporation, above mentioned. Assurances were given me that these carbon copies were exact duplicates of the original bills as submitted to these three private corporations. The genuineness of these carbon copies and the satisfaction, acceptance, and payment in full of said bills, was verified by me by recourse to the proper entries of the amounts of same in all books, records, bank statements, and deposit slips. Some of the bills antedated the contract hereinbefore first mentioned. The bills are in full detail and show that the charges of Hugh L. Cooper & Co. for services performed were as follows:

A charge of $250 per day for services rendered by Mr. Hugh L. Cooper on days when so actually engaged.

Full reimbursement of payments of salary of all assistants and employees so engaged, plus an overhead charge of 60 per cent, plus 25 per cent of the total of such said payments of salaries of assistants, etc., plus the 60 per cent overhead.

Full reimbursement of traveling expenses of all individuals so engaged, plus expenditures for purchase of materials, supplies, etc.

The accounts of Hugh L. Cooper are periodically examined and audited by the Audit Co. of New York and a full statement rendered by the Audit Co. of New York of recent date was shown me.

I have been reasonably satisfied that Hugh L. Cooper & Co. have charged the United States Government for services rendered only on the basis of actual cost to them, in accordance with all the terms of the contract between them and the United States Government; that said actual cost to them were payments of salaries to assistants and employees (as defined by said contract) plus the usual and common charge of 60 per cent for overhead, plus the actual traveling expenses of such assistants and employees and reimbursement of actual payment for purchases of materials, supplies, etc., and the payment of actual traveling expenses at the rate of $40 per day incurred by Mr. Hugh L. Cooper or his designated representative. That no charges were made for profit, either on the basis of their customary charge of 25 per cent to all other private corporations, enterprises, or projects, or in any other wise; also that no charges were made for services performed by Mr. Hugh L. Cooper or any of his designated representatives as is customary by the Hugh L. Cooper & Co. to charge other private corporations, enterprises, etc., on the basis of $250 per day, or on any other basis except that of reimbursement of actual traveling expenses at the rate of $40 per day.

JOSEPH STANLEY BERAN.

Sworn to and subscribed before me this 29th day of April, 1922.

[SEAL.] GEORGE GRANER,

Notary Public, Kings County, No. 238; certificate filed in New York County, No. 37; New York County register's No. 3038; Kings County register's No. 3055.

Commission expires March 30, 1923.

Mr. HULL. Does that show the amount of money that has been paid?

Mr. COOPER. No; these bills are audited every month. I do not know how much has been paid, but I think it is around $125,000.

Mr. HULL. That is not all that has been paid?

Mr. COOPER. To me?

Mr. HULL. Yes.

Mr. COOPER. Yes; it can not be much more than that. I do not know what it is, but in private practice it would be around $450,000. Our bills are audited every month by the Government.

Mr. HULL. Why were you mustered out in 1918, Colonel?

Mr. COOPER. Because I asked to be mustered out because there was nothing else to do. The project at Talmont, because of the fall of the Bulgarian Government, had been abandoned, and when I found there was not anything necessary for me to do I resigned here in the States, and I think that resignation was in September or October; I do not remember. What have you been told? What is on your mind?

Mr. HULL. Nothing at all.

Mr. COOPER. Well, that is the fact. I resigned just before the armistice.

Mr. HULL. It occurred to me that the record ought to show the reason, because some one might ask why you were mustered out; and if anyone should ask me I could not explain it.

Mr. COOPER. I am very glad to tell you.

Mr. CRAGO. In other words, some one might take the position that he should have been kept in the Army to complete this job instead of being employed as a civilian.

Mr. HULL. Yes; some one might ask that question, and I am sure I could not explain it, and I can see from the colonel's answer that there was a reason.

Mr. COOPER. Well, General Pershing wanted a new harbor built in France that would handle a 40-foot-draft boat, and I had found a place to do it. It was going to cost a great many millions of dollars, but it was a thing we had to have if the war went on. When the Bulgarian Government fell down everybody that seemed to know anything about it said that the war could not go on any further and the Talmont work was stopped.

Mr. JAMES. Colonel, in your testimony before the committee on February 17, 1922, the only reference I recall as to your compensation at that time was the following, which perhaps has caused considerable confusion, and you might want to clear this up. I quote from your testimony as follows:

"Then, when I came home, I found that the Chief of Engineers had been changed and that the new Chief of Engineers said that, in view of the fact they were following plans which I had recommended when I was in the service, he thought that I owed it to the Government to keep right on, on a Government basis, and do this work for nothing, and I have been fool enought to do it up to this time.

"I do not say that in any spirit of disrespect to anybody, but I do say that it is a little strange, in my experience at least, to be the designer and responsible for the execution of plans for forty or fifty million dollars of work for $1 a year after the armistice was signed, and that is another reason I would like to see somebody hurry up and get this dam done."

Now, the impression that was left, at least upon my mind, from your testimony before the committee was that you were up to even that moment a dollar-a-year man and that you had received no compensation for the services you had rendered the Government even up to the 17th day of February, 1922, and evidently it must have been confusing to the other members, because the chairman very aptly and properly congratulated you upon that statement in the following language:

"The CHAIRMAN. Mr. Cooper, I want to congratulate you on the fact that you have been willing to serve your country without sticking your hands into the Treasury and trying to pull out a big plum."

Now, that is all I recall that was ever said about your compensation, and all these other matters have come up since. Now, what explanation do you desire to make of that matter?

Mr. COOPER. The first explanation I desire to make is a statement that, I think, I was very unwise in the use of that language, in referring back to the $1-a-year basis. I should have gone on and told you everything, just as I have done to-day. I made a flat mistake; but at the same time I still think exactly along the lines I did in those days, because I am not making a dollar of profit out of this job, and can not possibly make a dollar of profit out of it: and I hope some day to still receive a kindly word, maybe, from the chairman of this committee. I can tell you also that I am heartily sick of the whole thing.

The CHAIRMAN. You are no more sick of it than the chairman of this committee.

Mr. COOPER. I do not blame Mr. James or anybody else for asking the questions they have. I should have told you before all this what I have told you to-day, but I was nervous as to how much time to take, and I am nervous now for the same reason. You all know it, don't you?

Mr. JAMES. You can readily see how a member of the committee could reach the conclusion that I did.

Mr. COOPER. I think you were justified in getting, which you did, a very erroneous idea of the facts. I did not tell you all the truth. I have told you all of it to-day, and it has taken a longer time.

Mr. JAMES. I will say I wish you had told it all before; I think it would have saved you from coming back to-day.

Mr. COOPER. Better late than never, as the old saying goes.

Mr. MILLER. Colonel Cooper, when you were first called by the Government, in your initial introduction to the Muscle Shoals proposition, you found a set of plans prepared by Major Burgess, did you?

Mr. COOPER. Colonel Burgess; yes.

Mr. MILLER. That was the condition of things when you came on the scene?

Mr. COOPER. Yes.

Mr. MILLER. Were you then in the service of the United States?

Mr. COOPER. Yes.

Mr. MILLER. With the rank of what—colonel?

Mr. COOPER. I think I was a major, or something like that at first. I do not remember exactly about that, however.

Mr. MILLER. You took those plans so submitted by Major Burgess and then looked over them, and that was the occasion on which the plans were worked over by you, and practically new plans adopted; is that right?

Mr. COOPER. That is right.

Mr. MILLER. In which the architecture of the dam was materially changed, and in which the incident of getting a heel on the dam was suggested by you?

Mr. COOPER. Yes; and an entirely new system to make the dam safe.

Mr. MILLER. Of course, we appreciate, as you stated in your testimony, that the great fundamental principle in dam construction is the safety of the project.

Mr. COOPER. Yes, sir.

Mr. MILLER. Now, of course, that entails, I suppose, an enormous amount of work for a project of this size; that is, the working over of those plans and getting them out?

Mr. COOPER. I never thought it was an enormous amount of work.

Mr. MILLER. We have been given to understand that this was the largest dam ever constructed.

Mr. COOPER. Yes; but the adoption of safe principles is not an enormous work, per se.

Mr. MILLER. Your company has prepared and is now preparing the plans and specifications for this dam?

Mr. COOPER. That is the fact.

Mr. MILLER. None of these plans are prepared by members of the Engineer Corps of the United States Army, but the plans are approved by the engineers of the United States Army?

Mr. COOPER. That is the fact.

Mr. MILLER. You have men of the firm of Hugh L. Cooper & Co. now employed on this work?

Mr. COOPER. Yes, sir.

Mr. MILLER. And there was a pay roll for the month of March of approximately $10,000?

Mr. COOPER. That was including the 60 per cent overhead.

Mr. MILLER. Some curiosity was aroused among some of the members of the committee as to this principle of adding 60 per cent. I heard your explanation of it, and I think I understand it very clearly. Every firm of technical men have, of course, their own way of doing business, and I have no fault to find. But I was wondering why—I do not know that it is necessary to go into this here—why you do business on this principle. I notice that a $500 per month man actually draws $800 per month.

Mr. COOPER. He does not draw it individually, entirely; we get $300 for overhead.

Mr. MILLER. That is the method you have always pursued?

Mr. COOPER. Yes, sir.

Mr. MILLER. Some companies charge a larger amount than that?

Mr. COOPER. Yes.

Mr. MILLER. Why is that?

Mr. COOPER. Because they have a heavier percentage of overhead. It runs in some cases as high as 125 per cent.

Mr. MILLER. What particular items does the 60 per cent cover? You spoke of your overhead.

Mr. COOPER. It is the expense of maintaining an organization.

Mr. MILLER. Month by month, as the pay roll comes in and is approved for the Muscle Shoals project, this 60 per cent is continuous, is constituting a part of the pay roll?

Mr. COOPER. Yes.

Mr. MILLER. Does that 60 per cent cover the house rent, and incidental things of that kind, of your men? Does any of that go to make up those items?

Mr. COOPER. No, sir; not a dollar.

Mr. MILLER. How many men have you on the job now as your force at Muscle Shoals?

Mr. COOPER. I think there are about 10, and about 10 or 11 in New York.

Mr. MILLER. Are the plans and other details prepared at Muscle Shoals or in New York?

Mr. COOPER. Part of them are prepared at Muscle Shoals and part of them in New York, in the ratio of about 60 per cent in New York and 40 per cent at Muscle Shoals.

Mr. MILLER. What percentage of your work is complete, so far as the preparations of places and specifications are concerned? How near through are you, considering the fact that 30 per cent of the construction is completed? What percentage of the plans is completed up to this time?

Mr. COOPER. About 60 per cent. That is just as a guess; but that is what I think it is, about 60 per cent.

Mr. MILLER. So far as the contract is concerned, your official status, or the official status of your firm, is that of consulting engineers?

Mr. COOPER. Yes, sir.

Mr. MILLER. Technically, you are more than consulting engineers, are you not? You are preparing plans and specifications and are practically the engineers in charge?

Mr. COOPER. The modern definition of a consulting engineer takes in all those things, Mr. Miller.

Mr. MILLER. I thought a consulting engineer was a man whose judgment was sought?

Mr. COOPER. No.

Mr. MILLER. So your firm is actually preparing all the plans and specifications and submitting those in turn to the Chief of Engineers of the Army and the construction is proceeding according to those plans, as they are approved?

Mr. COOPER. Yes; and we supervise the construction and see that the plans and specifications are carried out.

Mr. MILLER. What is the relation of the inspectors on the job to your work; that is, how do you coordinate with the Engineer Corps on that? There are some Engineer officers down there?

Mr. COOPER. The Engineer officers down there are in charge of the physical construction. They hire the laborers and the foremen, and do all the work a contractor would do. We do all the engineering work relating to design and inspection, acting for the Chief of Engineers.

Mr. MILLER. They may be called the constructing force?

Mr. COOPER. They are.

Mr. MILLER. It is a pretty good-sized job to prepare plans and detailed specifications for a job of that size?

Mr. COOPER. I think so.

Mr. MILLER. Up to the present time the Government has paid you somewhere in the vicinity of $125,000 for that work?

Mr. COOPER. That is my memory of it. But I do not want to be called down here again on that. I do not know. The moneys we have received include, besides preparing plans and specifications, the work of inspection, testing out foundations, measurements of stream flow, and all other work necessary to assure the safety of the dam when it is completed.

Mr. MILLER. My memory is that Colonel Barden's testimony was that the amount is in the neighborhood of $132,000. The pay roll in the month of March was $10,680 or thereabouts—about $10,000.

Mr. COOPER. Yes; it was.

Mr. MILLER. You pay the salaries of your men down there on the job?

Mr. COOPER. Yes, sir. Actual salaries plus the 60 per cent overhead.

Mr. MILLER. And you say that a similar service for a private corporation would have cost in the vicinity of $450,000?

Mr. COOPER. Up to date, yes.

Mr. MILLER. If this work was being done for a private enterprise?

Mr. COOPER. They would have paid a good deal more than $450,000 up to date. And I would also like to add a word that I think will possibly interest the committee in this connection, and that is that the service I am performing for the Government is exactly the same service I performed for the Province of Ontario, except that the Province of Ontario paid the $250 a day fee and also paid a 25 per cent profit. You will find when you read the auditor's statement that he refers to that and tells you so.

Mr. MILLER. I notice in the contract there is some phraseology to the effect that your firm shall be responsible for the building of the dam?

Mr. COOPER. Yes.

Mr. MILLER. That responsibility is not secured by the giving of a bond?

Mr. COOPER. No, sir; I have never been asked by any private corporation to give a bond.

Mr. MILLER. You mean you assume the responsibility as a reputable engineer?

Mr. COOPER. As an engineer. Failing in any particular part of that responsibility, my usefulness and career as an engineer is finished. That is regarded by private capital as a better guaranty that he will do a good job than any bond you could get from any bonding company.

Mr. MILLER. I was somewhat interested in the very important statement you made near the close of your testimony when you said if the Government turned this over to some individual you would not feel like continuing the same arrangement you have with the Government.

Mr. COOPER. That is true.

Mr. MILLER. You would, then, under that particular clause of the contract, serve notice on the Government that you desired to have the contract closed?

Mr. COOPER. Yes, sir.

Mr. MILLER. And any subsequent contract you might make with anybody else would be on such terms as could be mutually agreed upon from there on?

Mr. COOPER. Yes.

Mr. MILLER. Suppose that this matter should so turn out that the United States Government goes on and completes this Dam No. 2, the Wilson Dam, and when it is completed a contract with Mr. Henry Ford becomes operative for a lease period of a long term of years, say 50 or 100 years, the dam being completed by the Government with Government money; would you, under such circumstances as those, feel like serving a notice of cancellation of that contract?

Mr. COOPER. Yes, sir; most assuredly.

Mr. MILLER. You adopt the view then, that according to the terms of this contract which you gave, it is to be a Government propect and continue as a Government project, as distinguished from giving somebody a leasehold interest, or selling it?

Mr. COOPER. As distinguished from giving somebody a great big melon at Muscle Shoals. I am not referring to Mr. Ford or anybody else. I am not going to take the responsibility of building one of the most difficult dams that has ever been built in the world and have the work turned over to private capital or great profit to it and have my charges omit normal profit.

Further down the river there is the Hales Bar Dam. That is a failure, and we know why it is a failure.

Mr. MILLER. Working in a limestone country?

Mr. COOPER. Yes; there are a lot of open seams in it. It happened to be my good fortune to advise an organization of bankers about the Hales Bar Dam several years before it was started that there were no foundations there, and if the succeeding bankers had followed that advice they would have been several million dollars ahead now.

Mr. MILLER. Your reference to giving somebody a melon on the dam bears somewhat of a resemblance to what has been said about Nitrate Plant No. 2, which has been characterized as a lemon by a good many people.

Mr. COOPER. It belongs to the fruit family, any way.

Mr. HULL. I would like to ask you a question which is a little outside of this particular inquiry, is not personal, and has nothing to do with the testimony

you are giving. But it is very interesting to the members of the committee, and is in reference to your opinion of paragraph 4 and paragraph 8 of the Ford contract.

Laying aside the question of whether it is a lemon or a melon, suppose we make a contract with someone, presumably Henry Ford, or anybody else—I do not know whether you have read paragraphs 4 and 8 or not?

Mr. COOPER. I have, but I have not them before me.

Mr. HULL. They are in relation to the upkeep of these two dams, and it is specified in them that he will pay the Government $35,000 annually for the upkeep of Dam No. 2, and $20,000 annually for the upkeep of Dam No. 3. Is that an unreasonable proposition, or an unreasonable amount?

Mr. COOPER. It is too small an amount.

Mr. HULL. For the upkeep?

Mr. COOPER. Oh, yes.

The CHAIRMAN. With reefrence to the imperfections in Dam No. 2 to which you referred, do you think it would cost the Government a good deal more to keep that dam up to date, or keep it in repair?

Mr. COOPER. Yes; I think no matter how well that dam is built it has to be very wisely supervised. It is on a laminated foundation that is none too good, and there are thousands of people below it.

The CHAMBER. Of course, the danger is if it should wash out it would endanger the lives of all those people living below?

Mr. COOPER. Yes.

The CHAIRMAN. That is such a condition as happened in Johnstown, Pa.?

Mr. COOPER. Yes. I have already told the Chief of Engineers that whereas we have an apron at the foot of the dam of a certain width to protect the dam, when the water comes over the top of it in times of flood, we may find in actual practice that the apron will have to be three times as wide; nobody can tell. It will have to be observed, and that is a proposition that would bring you up against your question again, Mr. Hull, as to the sufficiency of the $35,000 item for Dam No. 2. It would not be nearly enough.

The CHAIRMAN. How much do you think it would cost?

Mr. COOPER. I would double it at least.

The CHAIRMAN. $70,000?

Mr. COOPER. Yes. That would be a very small amount for a dam that is going to cost probably $50,000,000.

Mr. HULL. You have no opinion you care to express to the committee as to the practicability of building Dam No. 3?

Mr. COOPER. No opinion whatsoever.

Mr. HULL. If proper precautions are taken in regard to the upkeep of Dam No. 2, there is practically no danger of the dam going out?

Mr. COOPER. No; I do not think there is any danger at all. I would be willing to have my family live under the dam when we got through with it, so far as safety is concerned. But if proper precautions are not taken in the building and after it will not be safe.

Mr. HULL. You think they are taking proper precaution?

Mr. COOPER. There is no doubt of that, Mr. Hull?

Mr. MILLER. Referring back to this Burgess plan: When you first came onto the work, and made your subsequent changes, can you tell us in a few words the changes you adopted?

Mr. COOPER. I will tell you the two radical, outstanding changes. The first one is that even in the Burgess plan there was no bridge on top of the dam at all, and I proved to the satisfaction of the Chief of Engineers that you could put a bridge there, get more power, and save money. In other words, you got the bridge for nothing, and had a safer structure when you were through. That is on the piece of paper I gave you.

The next thing is that the Burgess plan—and this is no criticism of Colonel Burgess—no doubt if he had followed the thing as I have he would have done exactly as I have done, in the presence of information he did not have, his drainage system for the pressures underneath the dam were entirely inadequate and would not have been worth anything; you would not have had a safe structure if you had built it that way.

Mr. MILLER. I wish you would amplify that drainage proposition a little bit.

Mr. COOPER. Let me see if I can not tell you in this way. Supposing I represent the layers of rock in this way, say this is a stratum, and this is another stratum [illustrating]. These strata are separated by an open space which

sometimes is filled in with sediment, and through these open spaces the water flows. That is the trouble at Hales Bar.

Mr. QUIN. That is in the rock itself?

Mr. COOPER. Yes.

At Hales Bar the strata had holes 4 feet deep. We have one 18 feet deep on the Wilson Dam.

Having in mind that the foundations upon which the dam rests are rock that are stratified, through which water passes, do you not see that as soon as you raise the pressure by the building of a dam the water will then be encouraged to go through those strata a great deal faster, and it will also build up a pressure underneath the dam, which will tend to tip it over, as many of them have done in the past. There are about 65 or 70 dams that have been washed out through failure to observe the things I am talking about.

The CHAIRMAN. Where is the big seam in dam No. 2?

Mr. COOPER. That is in the south abutment.

The CHAIRMAN. Did they fill that up with cement?

Mr. COOPER. They are going to do that. There are some very bad looking places there.

Mr. GREENE. The stratum is in the rock; you are speaking of the interstices?

Mr. COOPER. Yes. The interstices are the open spaces between the strata. The Burgess plan, as he originally laid it out, if it had been carried out, would not have permitted him to knowingly and successfully fill these interstices. The plan I have adopted gives us an absolute knowledge of where the strata are and the extent of them, and enables us to prove it in advance.

Mr. MILLER. That is a very important factor.

Mr. COOPER. I had the designs for this dam and this new installation down there, and built a telltale system for pressure observation so that an inspector can go along and see what the pressures under the dam are. The plan adopted is very definite and very precise.

Mr. PARKER. Is it by borings?

Mr. COOPER. Yes; borings connected to pressure pipes.

Mr. GREENE. Do you people bore down through the rock and then take the cores up and examine them, as is done in the case of marble and mineral?

Mr. COOPER. No; the thing we are after is the interstices, and we can get at the interstices in a cheaper way. The other system is very expensive. That was done originally. Now, we go down with the ordinary well drill. What we are after is a hole that we can put the cement in under pressure, and in that way fill the interstices. But you can not put your cement in under pressure until you have the weight of the dam on the rock, because if you applied the pressure before the dam was in place the pressure would force the rock up. You have to build your dam first, then you have to put your pressure on so that the pressure will have something to push against. For instance, here is your strata [illustrating]; down here, 18 inches, is a hole between that stratum and the next one. You want that filled with cement. You must fill it by a pressure equal to the pressure that will operate when you are finished.

Mr. PARKER. You spoke of an extended apron, three times as big; how much would that cost?

Mr. COOPER. I can not say, offhand. But an apron 5,000 feet long and 150 feet wide would be something like $300,000.

Mr. PARKER. The need for that could not be discovered until after the dam was done?

Mr. COOPER. Until the wave action of the overfall section works, and you see the amount of strain and scour it produces.

Mr. PARKER. It would take a year or so?

Mr. COOPER. At the Nile Dam it took five years.

Mr. PARKER. In this case it might take as long?

Mr. COOPER. Yes; it might.

Mr. PARKER. That is therefore a part of the cost of maintenance?

Mr. COOPER. Absolutely a part of the cost of maintenance.

Mr. PARKER. As to the other repairs on the dam, would there be any other cost? Take the gates and things of that sort. Is there any large amount of expense connected with that?

Mr. COOPER. They have to be painted every other year. They have to be kept in good working order, or else they will not be available for use.

Mr. CRAGO. In the construction of a great project like this would it be possible to go deep enough to get rid of all these seams?

Mr. COOPER. No; you can go down indefinitely and still have seams.

Mr. CRAGO. Even if you go down 50 feet?
Mr. COOPER. You would have the same thing.
Mr. GARRETT. This apron is at the foot of the dam?
Mr. COOPER. Yes, sir.
Mr. GARRETT. When that is first completed is that supposed to rest upon the rock.
Mr. COOPER. It must always rest upon the rock.
Mr. GARRETT. How does the erosion take place?
Mr. COOPER. Through the excessive friction of the water.
Mr. GARRETT. You mean it is back under the water?
Mr. COOPER. Yes.
Mr. GARRETT. Would it not be better policy to put the apron down at the beginning and take the chance?
Mr. COOPER. No, I think not.
Mr. GREENE. There is some strain put there?
Mr. COOPER. Yes; a very heavy strain there now; when it is heavier we can not tell how to stop it.
Mr. GARRETT. That is at the bottom of the river. How do they find out when the erosion begins to take place?
Mr. COOPER. By taking measurements after each flood.
Mr. GARRETT. They sound?
Mr. COOPER. Yes. The way the Wilson Dam was built they can un-water any section of the river at will and it will be perfectly dry below that section of the dam, thus permitting careful measurements.
Mr. PARKER. Below the dam or above?
Mr. COOPER. Below.
Mr. PARKER. How do we unwater?
Mr. COOPER. The river can be shifted sideways for quite a distance.
Mr. PARKER. There are 63 gates across there, are there not?
Mr. COOPER. Yes.
Mr. WRIGHT. I think I understand the contract you have with the Government. For illustration, last month's payroll was approximately $10,000.
Mr. COOPER. Yes; that is 60 per cent added to about $6,500.
Mr. WRIGHT. Sixty-five hundred dollars is about what the men actually received?
Mr. COOPER. Yes.
Mr. WRIGHT. Will you have approximately $4,000 overhead?
Mr. COOPER. Yes.
Mr. WRIGHT. How do you apportion that overhead? You say you had about 10 men there in your employ. Would it take $4,000 in overhead to cover those 10 men?
Mr. COOPER. That comes in in the year's business, year in and year out, and the number of men is not 10 but over 20 on this work. We find that the overhead is about' 60 per cent before we get any profit. You can not of course figure overhead on any one job. We must take all the work together.
Mr. WRIGHT. You do not think it would require $4,000 for the overhead for 10 men?
Mr. COOPER. But there are a lot more than 10 men on it.
Mr. WRIGHT. I was speaking about now.
Mr. COOPER. But you see we have a large accounting force in the New York office, and stenographers, and all that sort of thing.
The CHAIRMAN. We are very much obliged to you, indeed.
(Thereupon the committee adjourned.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Tuesday, May 16, 1922.

The committee met in executive session at 10 o'clock a. m., Hon. Julius Kahn (chairman) presiding.

The CHAIRMAN. Mr. Lord, the other day, when you spoke to me you told me the conditions on the Tennessee River with regard to the mineral supply, and also with regard to the navigation of the river. Will you kindly, in your own way, state what the conditions are down there on that stream, what you think is necessary to be done down there to make those minerals available for the rest of the country and the world?

STATEMENT OF MR. CHASE H. LORD, CHICAGO, ILL., AND GADSDEN, ALA., GEOLOGIST AND CONSULTING ENGINEER.

Mr. LORD. Mr. Chairman, I would like to state in the first place that in contemplating a large contract in connection with iron and coal property along the banks of the Tennessee River the people whom I have represented have considered it necessary to avoid any publication of the real facts.

I want to startle you by saying that I will present the proof, or the access to the proof, that there lie on the banks of the Tennessee River more iron and coal on the same acreage—more iron than exists in the State of Alabama and in the State of Michigan combined. The Mesabi and the other ranges in Michigan and the mountains in Alabama carry less than 50 per cent of the proven tonnage of iron that lies in the ranges adjoining the Tennessee River * * *.

Gentlemen, I was more impressed with the statement of Mr. Kahn yesterday than anything I have heard in Washhington when he said he felt the importance of the subject before this committee to be greater than that of any subject that had been placed in the hands of any committee in years. There is no question about that fact. The price of steel in Hongkong, in Liverpool, in St. Louis, in Minneapolis, in Chicago, and in the markets of the world will be determined for the next century by the cost of raw materials entering into that product, which are found along the Tennessee River, and the cost of transporting them to the Gulf, where they can be exported, and Muscle Shoals is the key to the whole situation.

The questionable value of the prime current at Muscle Shoals and the worthless value of the excess current at Muscle Shoals are so unimportant in considering this question that it seemed to me they had been very much overstressed and that the transportation question had been totally overlooked. My hope is that this project may be looked upon as something that must be built in its entirety at once. The objection which I have to any of the offers for this proposition, by Mr. Ford or anybody else, lies in the fact that they do not contemplate completing the project at once. The Alabama Power Co. proposition is that the Wilson Dam and Dam No. 3 shall not be completed until the demand for current shall justify the construction. That means that the Tennessee River will be worthless for navigation for the next 20 years.

In that connection I submit that it took the Stone & Webster organization at Keokuk 15 years to sell the primary current of 100,000 horsepower, and they have there the foundations for 15 turbines now in the river, for the purpose of utilizing the excess current, and they have never installed one of them. The excess current has never been worth anything, and never will be, and the total current we have at Muscle Shoals is lower than 100,000 horsepower at less than 3.7 mills per horsepower, or 5 mills per horsepower hour. If I represented Mr. Ford, my advice to him would be not to take Muscle Shoals at the price he has offered for it.

Mr. PARKER. You mean 100,000 horsepower for both dams?

Mr. LORD. Yes, sir; I think the committee has that information.

Mr. MILLER. It is 134,000.

Mr. LORD. I have information in my pocket—and I think nobody will accuse me of presenting reporter's information—favorable to Mr. Ford, obtained when the Tribune sent its reporter down there to study conditions. He gives the horsepower at Dam No. 2 and Dam No. 3 at 118,000. If you will take 7,200 cubic feet of water at 64 pounds per cubic foot and drop it 134 feet and figure its minimum flow you will have 106,000 possible horsepower, if we had 100 per cent efficiency. But take it at 87 per cent and you will have less than 100,000.

Mr. MILLER. Seventy-two thousand was the minimum flow in the last 21 years. According to a statement that has been made they figure that 90,000 horsepower will run during 97 per cent of the year, so they figure a maximum of 100,000 horsepower at Dam No. 2, and 34,000 at Dam No. 3.

Mr. LORD. That is on a 100 per cent basis. You can not run water through turbines without loss in efficiency. Take the drop in that river and you will find, I think, that the figures are what I stated.

There is one other point to be considered which I know has not come before your committee. At the time the Mesabi Range was opened nobody dreamed that the tonnage through the South Canal would equal 60,000,000 tons in 1922. I speak of the tonnage above the dams on the river to show that there is need

for the navigation of that river and I say to you that 30 per cent of the run-off of that stream will be used in the operation of the locks, and not all of it to develop horsepower, provided Congress provides that all water that may be needed for navigation of the Tennessee River shall be reserved to the Government, and if that is done the horsepower will be cut closer to 60,000 in the next 20 years than to 100,000.

Mr. HULL. I want to ask you a question before you get away from the question of horsepower. As we have listened to experts on horsepower, there is one thing that has amazed me, and that is that none of them agree as to the primary horsepower on which we can figure at Muscle Shoals. Do not some of the experts, when they figure primary horsepower, figure sometimes that steam power can be figured on to furnish some of the primary power, that they can sell it and make money by running the plant three months in the year and run the power up to 125,000 or 130,000 and then they can say that they have 130,000 primary power at Muscle Shoals?

Mr. LORD. No, sir; I do not agree with you.

Mr. HULL. Do not some of them do it?

Mr. LORD. That may be. That comes to the question of a balanced load and the long valley, and questions of the examination of the current.

I might refer to a very recent unfortunate experience of the Stone & Webster Co., than whom there are no better in America in hydroelectric work, who built the Keokuk Dam. I happened to be the only engineer who made an adverse report on that proposition, preventing an investment of $5,000,000 in St. Louis and the vicinity.

I recently saw Mr. Bradley in Boston. He wished the thing on them, and he said the dam cost twice as much as they thought it would and that they had only half as much as they thought they would get from it. What have they at Keokuk? They have 100,000 minimum flow, which constitutes the value of the Keokuk Dam. But they put in foundations for 30 turbines, and there are 15 foundations there now with the facilities for the transporting of the current to St. Louis and to the tri-cities on the Mississippi River—Davenport, Moline, and Rock Island. The Stone & Webster organization offered me the excess current for 2½ mills per kilowatt-hour, and I have signed a contract for 25 years by which they agree to turn it over to me, and I thought I could use it for metallurgical purposes, but I abandoned it.

Mr. HULL. They have got steam power at Keokuk?

Mr. LORD. No, sir.

Mr. HULL. They have at Muscle Shoals. What do you say the primary power is at Muscle Shoals?

Mr. LORD. Referring to the steam plant?

Mr. HULL. No; you say you do not figure the steam plant.

Mr. LORD. The primary current or water power at Muscle Shoals will not be, when delivered at the power plant, 100,000 horsepower.

Mr. HULL. We all agree to that.

Mr. LORD. We have 60,000 kilovolt amperes possible, at the steam plant, and that makes 160,000 kilovolt amperes total.

The CHAIRMAN. In referring to 100,000 horsepower, do you mean that can be developed at Dams 2 and 3?

Mr. LORD. Yes, sir.

The CHAIRMAN. That is the total amount?

Mr. LORD. Yes, sir; that is the only amount of horsepower that they will be sure can be installed and economically delivered from Muscle Shoals.

Mr. HULL. Of course that could not be so if you did not have your steam plant.

Mr. LORD. Oh, yes, it could.

Mr. HULL. I thought you said it drops 40,000.

Mr. LORD. That is at one dam, Dam No. 2. At Dam No. 3 it is 34,000 on paper, but when you get through the service you will have about 100,000 horsepower or about 60,000 kilovolt amperes at 5 mills at Muscle Shoals. I did not come here to advocate one plan or another in connection with this matter, but I am simply trying to give you some information, without any interest in one plan or the other. I represent people who want to open iron and coal mines in Alabama, and take the stuff out by tow to St. Louis.

Mr. CROWTHER. How many more dams will it take, or how many pools will it take, to develop really navigable water through that stream?

Mr. LORD. I think your engineer's reports, which I went over two years ago very carefully, were well prepared and are as accurate as any. There is only one criticism I have to make, and that is one I have made for the last 20 years. They always overestimate the value of the hydroelectrics in these low heads.

Mr. CROWTHER. How much is required—is 5 feet enough?

Mr. LORD. No, sir. You have planned for 6 feet; you ought to have 9. It would be much more economical for the Government to put in a 9-foot channel now and be done with it than to put it in piecemeal.

Mr. HULL. As contemplated at Muscle Shoals, under the plan they propose now, it is 6 feet.

Mr. LORD. The locks are adequate for 9 feet.

Mr. HULL. The channel above is only 6 feet. * * * What draft do you have from Decatur?

Mr. LORD. I am here simply as a friend of the court. I have some very strong impressions of Mr. Ford, personally, and I am going to say right now if I can help sell Mr. Ford the horsepower those two dams will develop for a million and a half a year I think I will be helping to make the best sale the Government has ever made.

Mr. STOLL. Would the acceptance of Mr. Ford's offer which carries with it the completion of the Dam No. 2, and the construction of Dam No. 3, the general terms providing for its repayment——

Mr. LORD (interposing). In 100 years.

Mr. STOLL. One hundred years; would the acceptance of Mr. Ford's plan in any way interfere with the navigation plan you have outlined here?

Mr. LORD. No, sir. The reason I am not in favor of Mr. Ford's plan to proceed, is I am in favor of no plan which does not contemplate the completion of both dams and the Government's immediately completing the navigation facilities from Chattanooga to the mouth. None of these other propositions contemplates the completion of the two dams. So far as the Keokuk Dam is concerned that has always been a white elephant on the hands of the Stone & Webster people.

Mr. MILLER. You say the Keokuk Dam is a white elephant. Let me read you the testimony of Colonel Cooper before this committee.

The question was asked, "What was the cost of the Keokuk Dam? He answered about "$24,000,000."

"That was built in what year?

"It was finished in 1912.

"At the time it was completed was there a demand for the maximum amount; that is, at the Keokuk Dam?

"No.

"Is there a demand for the maximum amount now?

"We are entirely sold out. I happen to be vice president of the company.

"How do the rates per kilowatt-hour at the Keokuk Dam now compare with the rates when the power was first developed?

"About 25 per cent higher."

Mr. LORD. Does he state the rates?

Mr. MILLER. He does not, but he says, they are 25 per cent higher and he also said, in referring to the question, "What is the horsepower at the Keokuk Dam?" "We are now generating a maximum each day of about 165,000 horsepower."

How can a thing like that be a white elephant?

Mr. LORD. I am simply stating the conditions that prevailed before the war. Coal, before the war, in Chicago was furnished at $2.45 per ton. So far as the water power—and that is what they call white coal—the competition of water power with coal was less before the war than it has been in the last few years.

Mr. MILLER. That is all back of us.

Mr. LORD. But they sold this current on a market developed during the high market of the war. They are asking 3 mills for the current at St. Louis, and they are asking 5 mills for the current at the dam. They have an arrangement with the steam plants at St. Louis by means of which they send 30,000 kilowatt-volt-amperes to St. Louis, and St. Louis takes that current in harmony with their steam plants, and they use it in that way. I am speaking of the Keokuk in its entirety. I can submit to you a signed copy of a contract made with the company I represent, made with the Stone & Webster Co., offering me their excess current at 2¼ mills, about five years ago. That contract was for the excess current. But in that contract which

they signed they provided in case the earnings at 2¼ mills did not pay for the generators put on the foundations we were to pay the difference. Mr. Cooper must admit that the 15 foundations are not to-day in use for excess current.

Mr. McKENZIE. I was not here when you began your statement Of course I do not know whether you stated whom you represent.

Mr. LORD. Whom I represent in the iron and coal matters?

Mr. McKENZIE. Yes.

Mr. LORD. I represent purchasers of some of these iron and coal properties, in advising them as to opening the mines and delivering the iron and coal. I perhaps may say that I indirectly represent—because they have their own engineer there—but I am consulting engineer for Mr. Berry and Mr. ——— of Sharon, Pa.

Mr. McKENZIE. You have described this wonderful deposit of iron and coal along the banks of the Tennessee River. There are certain men or corporations that would undertake to develop that providing they were assured of some transportation facilities to get it out to the market?

Mr. LORD. I do not want to put it that broadly. They are going to undertake the development of it anyway. They are going to open it; nothing can prevent the opening of it. But the prices at which they will sell the deposits of the interior will be determined by whether or not they can get the material to the markets.

Mr. McKENZIE. I do not criticize you, but I presume you have been before the Committee on Rivers and Harbors many times in regard to this matter.

Mr. LORD. No, sir. I came here simply to give the committee some facts. I came to Washington to see the officials of the great Southern Railway, and I have no connection with the development of waterways.

Mr. McKENZIE. Have not the people whom you represent heretofore undertaken to interest the Committee on Rivers and Harbors in the development of the Tennessee River?

Mr. LORD. No, sir.

Mr. McKENZIE. The question I want to ask you is this: Do you not feel that the Committee on Rivers and Harbors is the committee that ought to have jurisdiction or does have jurisdiction over the matter of the development of our inland waterways, rather than this Committee on Military Affairs?

Mr. LORD. Except that this committee has this matter of Muscle Shoals before it, and has been considering it.

Mr. McKENZIE. Let me follow that question with this one: In the event that this committee should recommend the acceptance of the Ford proposal, and that Dam No. 2 and Dam 3 are constructed that would be a long step toward the end for which you are striving?

Mr. LORD. It would practically complete it, whether or not it is Mr. Ford or anybody else who gets the contract. If those two dams are completed, on the basis of a proposition satisfactory to the country that would practically finish it.

Mr. McKENZIE. After constructing those two dams, which are the principal ones, do you think it would be very difficult to go before the Committee on Rivers and Harbors and ask for further appropriations to construct Dam No. 1 and the other dams on that river and complete the navigation project which would enable you to take your product down?

Mr. LORD. Not at all; it would not amount to anything.

Mr. McKENZIE. I Just want to get your point of view. So far as you are concerned, and the interests whom you represent, it would be a great help to you if the Ford proposition goes through.

Mr. LORD. I want to modify that question. Whether or not it is the Ford proposition or anybody else's proposition, if they take this proposed job and do it, I do not care whether it is Mr. Ford or the Alabama Power Co. or somebody from Baltimore who will get the power.

Mr. McKENZIE. You do not contend that it will be within the province of this committee to deal with the dams above and below?

Mr. LORD. No; absolutely not. That is a matter for the Committee on Rivers and Harbors, I should say. There is no question about that. But here is what is going to be troublesome, as you will see by these maps, which I hope you gentlemen will take the trouble to look at; they were prepared by the Robert W. Hunt Co. There is a cross section showing the iron which is under and the coal on top, and also the area. Birmingham has been built

at Birmingham. The iron and steel are made in Alabama and hauled by truck and by rail to the markets. The steel business at Pittsburgh and Gary was located there because they could bring the iron ore from the Northwest and the coal from West Virginia and make the finished product and ship it to the markets. * * *

I want to see this done because it is possible to ship more tons of raw material to make 1 ton of pig iron and ship it to St. Louis and make it up there cheaper than it is to make a ton of pig iron here [indicating on map], provided we can ship it by water.

Mr. McKENZIE. It is a fact, is it not, that the city of Gary was built on the shores of Lake Michigan by the United States Steel Corporation so that they might have a cheap transportation of ore from the great Messaba range and that they could go on and make the finished product there without any further transportation?

Mr. LORD. They transport the finished product. You can ship this raw material easily enough by water, but you can not ship structural steel plate and tubing by water. The only value of inland waterways is in the transportation of heavy tonnage, and, therefore, it is important, if this great natural resource shall serve the whole country that that great barrier be taken out of there and that that material be allowed to float downstream to Cairo and these other places.

When God Almighty planned this country it seems to me he planned it wonderfully well. Here is this river flowing southwest within 60 miles of Birmingham and then turning northwest and flowing down to the Ohio, and at Cairo you are right in the heart of the country, and from there you can distribute by rail.

Mr. MILLER. What rail facilities have you adjacent to this deposit?

Mr. LORD. Right along the eastern part of the plateau there are the Southern and the N. C. & St. L. You have a water rate by the river, or a rail-and-water rate by the railroad and the river, which is 80 per cent of the straight rail rate.

Mr. MILLER. Congress has had long years of experience in this proposition. A few years ago the people of Alabama came before a committee of Congress and proposed a comprehensive scheme for the use of the Black Warrior River for the purpose of delivering coal into New Orleans, and Congress spent millions of dollars on that, and to-day there is not a barge on the river, with the exception of such as the Government has put on, engaged in the transportation of coal. The question is whether, after all the money the Government has put in there upon the representations of the people of New Orleans seeking to have coal delivered from that great coal belt, and private capital has not seen fit to make any investment in facilities for getting that coal down——

Mr. LORD (interposing). Here is the location which should be developed.

Mr. MILLER. That has nothing to do with it.

Mr. LORD. I was told by gentlemen in whom I have every confidence that you could load this stuff back there and ship it down the Warrior River to Birmingham and then on down to Mobile.

Mr. MILLER. Still the fact remains that there are no facilities on the Warrior River, or the Tombigbee River, handling coal from that country. But we are advised by the Secretary of War that he expects to take off the Government barges. If the people in that section who are interested in the delivery of coal into New Orleans have not the enterprise to embark on that proposition after the Government has made those rivers navigable, what might we expect from the Tennessee River?

Mr. LORD. Let me tell you some facts. Colonel Musgrove, of Alabama, has sold to an organization or syndicate in New York 2,000 acres of coal on the Black Warrior River, and they have purchased a large island at the mouth of Mobile Bay, and they have made an investment of millions of dollars there, and they expect to utilize the Warrior River to take the coal for export to Mobile Bay. I can substantiate that statement.

Mr. MILLER. But up to the present time nobody has done it.

Mr. LORD. Why is that? It is because they have handled the Black Warrior River project the same as they have handled all the rest of the inland waterways. They do a little bit of work here and a little bit there, and they do not complete the project. It is not finished to-day, although they have been working on it for a long time.

Mr. MILLER. But a 600-foot Government barge goes through.

Mr. LORD. They are doing some of the work.

Mr. MILLER. I do not know what they are doing, but that is the case.

Mr. LORD. The whole trouble is that the Warrior River itself is just beginning to be useful, and the improvement has not yet been completed.

Mr. MILLER. Where does the Government barge get its coal?

Mr. LORD. It gets it near Birmingham.

Mr. MILLER. Up to Cordova.

Mr. LORD. It is only a few miles, and the coal fields are around Jasper.

Mr. MILLER. But the barge goes 100 miles above Jasper.

Mr. LORD. I do not wish to have the committee feel that I am unduly urgent, but we went ahead, and, frankly, there is nothing before Congress asking to have anything done to the Tennessee River. I will quote to you from Mr. Luther Rice as to what he thinks. Mr. Rice says that when the Muscle Shoals dams are completed, and they will be completed, you can load your boats at Knoxville and can reach the entire Mississippi Valley with your raw materials and finished product at the lowest possible freight charges, and you will be able to lay down pig iron at St. Louis for $5 less than it takes to make it to-day in the great plants of St. Louis. Those statements were made by Mr. Rice to a group of 15 millionaires who are buying 100,000 acres of Raccoon Mountain property and for some miles beyond, and he is chief engineer of one of the most important engineering firms in America.

Mr. HULL. I would like to ask you a few questions in order to clear up some things in my mind. I am very friendly to your idea, but I wonder why it is that it would not be more economical to make your own pig iron down there where you have the coal and the iron ore than to transport both of them up to St. Louis along this river?

Mr. LORD. That question is asked very frequently by some of the engineering firms. The facts are that the rail rates—the first thing is that you can not transport structural steel, plate steel on barges, either on lakes or river. They take very little packet freight. The rail rate from this district through to St. Louis is $5.70. The cost of transporting the 4 tons of coal and iron necessary to make 1 ton of pig iron to St. Louis by water would be from $2.60 to $3.20.

Mr. HULL. What is the depth of the water at the present time below the shoals?

Mr. LORD. From Riverton to the mouth it is practically a 6-foot channel.

Mr. HULL. And from Paducah to St. Louis it is 6 feet.

Mr. LORD. It is a good 6-foot channel.

There is one other matter I want to bring. In reference to agriculture, or fertilizer, I met Mr. Howard in Chicago and laid before him some facts in reference to phosphatic limestones. The phospate deposits of the United States constitute about 80 per cent of the available phosphate deposits of the world. About 65 per cent of the phosphatic materials of the United States lie in the Tennessee Valley. Phosphate of lime such as we have in Florida where it is leached out is a result of watering the sands of Florida, and the carbonates come up from the mouth, and they are washed, and in Tennessee around the places where the phosphatic limestone has been exposed and the carbonates leached out you have these phosphate deposits, which are the best deposits of that material left in this country.

The phosphatic limestone of the Tennessee Valley carry from 20 to 30 per cent of BPL and the rest in carbonates, and there are great bluffs of that up above the shoals of the Tennessee River. As has been said, there are others in Kentucky and Tennessee, it is true, but they are not on a waterway, and those phosphatic limestones can be dumped into barges on the Tennessee River and floated down to St. Louis and elsewhere on the waterways, and that is the fertilizer the farmer will have to rely on. Nitrates—no. And I do not hesitate to say I can not understand how anybody realizing that the development of the art is constantly running against the process of taking nitrogen from the air can conceive that that plant at Muscle Shoals in 10 years will be anything but junk, particularly when we realize that the supply can be restricted and that Chile can bring nitrogen into this country, as a matter of fact, below the cost of producing it at Muscle Shoals. How can we think of that as of any value for fertilizing plants?

If you are going to talk about it as a necessity, to keep it there in order to furnish commercial nitrogen for shells, I have not a word to say. But the agricultural committee was in perfect accord with my prediction as to the value of it as a nitrogen plant.

Mr. HULL. You understand the only reason the committee is considering this proposition is because of its value from a national-defense standpoint.

Mr. LORD. I understand Mr. Ford's plan contemplates the maintenance and operation of that plant so you can have the use of it for war purposes, and that is a mighty good thing to have. But from the standpoint of making fertilizer to sell or making money from the sale of fertilizer it is the most vague dream that could be thought of.

Mr. MILLER. But Mr. Ford's offer includes the manufacture of fertilizer.

Mr. LORD. Let us come to the facts. I submit it will take one-third of the minimum flow of the Tennessee River to operate the locks in 10 years' time, and therefore Mr. Ford will not have 100,000 horsepower available for his use. I submit that the records of other plants of the country will prove to you that excess current has no commercial value. It is a current that can not be had through the year, and you can not afford to have men around and lay them off for two or three months every year.

I submit for your information that the cost of making current by the Commonwealth Edison Co. included a charge of $3.70 for coal. I submit they still have the current at 6⅞ mills delivered to the steel mills in South Chicago and to other mills, and that the depreciation of the art has been running along for 20 years against hydroelectrics because the cost of making the current from coal has been lowered, and they are getting more out of it. You will never get more out of the water power, and your coal cost for making current will go down. One hundred years is too far ahead to figure on.

Mr. CROWTHER. You suggested a figure representing the proportionate quantity of the developed horsepower which would be required for the operation of the locks. This hearing being in executive session, I want to say that all we are figuring on in this contract is 100,000 horsepower at one and 200,000 horsepower at the other.

Mr. LORD. You are talking about the power to run the lock-gates——

Mr. CROWTHER (interposing). Yes.

Mr. LORD. I am not talking about the power, I am talking about the water it will take away from the turbines to discharge the locks into the river, and that will not leave any water there to make your current. You can make your current cheaper than you can under this proposition of Mr. Ford's. Those are pretty hard facts. I came here to state the facts, and not to mince matters.

Mr. MILLER. What in the world can prompt Mr. Ford to make such an offer as he has presented to this committee and expect to play such a losing game?

Mr. LORD. This hearing is in executive session. I hope one of the gentlemen from Houghton is present. I notice one member of the committee is from Houghton. One of the pioneers on the Mesaba range came to my office this morning. He had been in Northern Michigan and he saw Mr. Ford's manager of the plant up there and spent a day with him. He said this manager was with Mr. Ford at Muscle Shoals. He said what Ford is thinking about none of us can tell. He said Mr. Ford has done this sort of thing in the last ten years and if Congress had gumption enough to let him contribute a million and a half for a hundred years to subsidize the cost of that water power I would like to try to help them do it.

Mr. PARKER. Do you consider the dams themselves as security for the payment of the million and half a year?

Mr. LORD. Yes, sir; and I would advise you to get this contract with all the security you can now, because in 10 years' time you could not sell the current for that.

Mr. PARKER. You mean to say if we could get all the security we can get out of it on that payment we ought to take it, and you would want security on the other property?

Mr. LORD. I would want an obligation based on the plant. That would be a prior obligation on all the property he had there.

Mr. MCKENZIE. It has been contended before this committee that this proposition is overgenerous to Mr. Ford.

Mr. LORD. I know it is.

Mr. MCKENZIE. And that it discriminates in favor of Mr. Ford as against other corporations in the country engaged in like business. If you are correct in your diagnosis of the case, Mr. Ford will not be a very dangerous competitor?

Mr. LORD. With the other people?

Mr. MCKENZIE. Yes.

Mr. LORD. Oh, yes; he will be. He built the most beautiful compound engines at Highland Park, and was going to do away with all electric power and machinery. He was going to make current at one-tenth the cost of making it in any other way.

Mr. Blair went to Detroit. He said he was going to make steel with direct heat, pouring it into his cylinders.

Mr. Ford will be a dangerous competitor in business because he will use the current that is generated there. He could afford to pay a million and a half a year and not hurt himself a bit.

Mr. FROTHINGHAM. What will he use it for?

Mr. LORD. He will use it for a manufacturing plant of some kind or other after he gets it. This fertilizer business is all bunk.

Mr. JAMES. You spoke about Mr. Ford being at Houghton?

Mr. LORD. I was referring to the manager of his plant at Houghton.

Mr. MILLER. You were speaking about a bond. Suppose Mr. Ford offers to organize a company with $10,000,000 paid up capital stock to take over this offer. There is no greater stock and bond capital in all the insurance companies in America, and this is about as good a bond as any insurance that you would be able to get in any dozen insurance companies.

Mr. LORD. I have stated that I have no doubt about the present head of the proposed company, but I would want to get the best security for the Government for the use of this power. He will use this power pretty fast for the next few years. He has electricity in his head now, and I would provide that the plants built shall remain an underlying lien to the Government as security for the payment for this current from year to year.

Mr. PARKER. The $10,000,000 might go into that, and if it were all used for that purpose it would only last a few years.

Mr. LORD. That is very true, but I want you——

Mr. PARKER (interposing). You think the plants ought to have a lien on them?

Mr. LORD. I think you should take anything you can get. You are selling him the biggest element in manufacture that any man ever bought.

Mr. FROTHINGHAM. Not so far as water power is concerned.

Mr. MILLER. You think it would be a good proposition for the Government?

Mr. LORD. There is no question on earth about it. Unless somebody else will come in, with a corresponding one—all these propositions look as if they have an ulterior motive. Mr. Ford has made some very unfortunate remarks; he always does. He said what he could do with aluminum, and they probably would make aluminum down there.

The CHAIRMAN. The aluminum is made at the very headwaters of the river.

Mr. LORD. Surely, and they do not care to have Mr. Ford get into the aluminum business.

Mr. MILLER. Early in this game the fertilizer interests of this country said that Mr. Ford could not make any fertilizer at Muscle Shoals. Then subsequently they came before the committee and said he can make fertilizer and will put all of them in bankruptcy. The vice president of the American Fertilizer Association was before us and he said it was going to break them up.

Mr. LORD. All Mr. Ford will actually do at Muscle Shoals will be the only sensible thing he has done. You ask why he does these things; why should any sane man build a steel plant at River Rouge and go through all those bridges, because he happens to have been born at Dearborn, when he had a front of a mile and a half along the Detroit River, with 25 feet of water?

Mr. Ford will make his raw-iron products for his cars at Muscle Shoals and make the pig iron there. He will utilize his power, and continue to utilize it after it will cost him more than what he pays the Government.

Mr. MILLER. The Alabama Power Co. is the lessee of the plant at nitrate plant No. 1. and they came before us and told us that they can not operate that plant except as what you might call an emergency plant to supply the shortage in the short period of the year.

Mr. LORD. Sure.

Mr. MILLER. That it is prohibitive in the cost of operation?

Mr. LORD. You mean the Warrior River property?

Mr. MILLER. No; I am talking about the steam plant at Muscle Shoals. They said that it cost them so much to operate that plant that they can not operate it and sell power at a profit.

Mr. LORD. How does the city of Chicago get its current?

Mr. MILLER. I do not care anything about Chicago.

Mr. LORD. I am trying to answer as to why they make that statement to you.

Mr. MILLER. I am talking about the Alabama Power Co. I presume they know their business. That is what they say.

Mr. LORD. I state this, that the Commonwealth Edison Co, with the largest generating plant in the world for producing current from coal can give you information as to what it costs to make current from coal, with the cost of coal at Chicago 33 per cent higher than the cost at Muscle Shoals.

Mr. MILLER. Then the dam would be but a small part of the whole thing?

Mr. LORD. Because of the fact that they do not make prime current enough; if the river flowed constantly they could make three or four hundred thousand horsepower, all right.

Mr. GARRETT. Did I understand you to say that in the case of Muscle Shoals the steam plant was where it required 1,500 tons of coal a day to run it and that if that dam was torn out of there and they did not ever have a dam that they could go to Muscle Shoals and run that steam plant, consuming that much coal, and make power cheaper than they could make it by water?

Mr. LORD. Not if the dam was in, but cheaper than they could pay interest on the million and a half dollars on the investment to put the dam in and run it. I say, the dam being built and the interest charge carried against it the water power will always continue to be used, but that the cost of operating the water power plant when it is built, as compared with coal, is very much less than coal.

Mr. GREENE. Then, to that extent, the dam being put in, Uncle Sam, by the terms of the Ford offer, has specified——

Mr. LORD (interposing). I do not agree with you. I think he is paying more for the current he can use than the current is worth and that it would cost him to get it.

Mr. GREENE. But if the dam were not in it would be cheaper to use coal?

Mr. LORD. With the coal plant in it would be cheaper to build a plant and make the current than to use the hydroelectric power.

Mr. GREENE. But the hydroelectric company, not Mr. Ford gets that benefit.

Mr. LORD. But he pays more for it than the interest on the coal plant, and the cost of operating the coal plant.

Mr. GREENE. We can not, in this contract for a specific thing, judge what Mr. Ford might pay for it, if he had taken a hypothetical case.

Mr. LORD. What that much current is worth at the generator is the proposition. That much current at the generator is not worth the price that Mr. Ford is paying for it, based upon what it can be purchased for to-day, or what it is being produced for in a plant of similar size in the city of Chicago.

Mr. HULL. You know Mr. Cooper?

Mr. LORD. Yes, sir.

Mr. HULL. Pretty well?

Mr. LORD. I met him only once, at the time he was recommending the building of the dam.

Mr. HULL. He is an expert hydroelectric engineer?

Mr. LORD. He is a very excellent engineer in construction. I made one adverse report on the dam he built at Keokuk, to the St. Louis people.

Mr. HULL. You understand that his testimony is at variance with your testimoney, as to hydroelectric power?

Mr. LORD. I have been at variance with engineers for the last 10 or 15 years in connection with hydroelectric power as compared with steam. You have heard a good deal about that. You remember that the city of Buffalo canceled its contract with the Ontario Power Co., and began to make its current with coal, and they began to get current at Niagara about as cheap as anybody, and the Ontario Power Co., in order to pay the interest on their bonds, offered to sell current——

Mr. MILLER (interposing). Was not that the reason why the city of Buffalo canceled its contract because the factories would pay more than the city of Buffalo could possibly pay?

Mr. LORD. No. that is not the reason. The Ontario Power Co. had 30 per cent of their generator capacity unsold.

Mr. MILLER. What is the Ontario Power Co.?

Mr. LORD. That is a company on the Canadian side. They canceled their contract because they could get it from coal cheaper at Buffalo.

The CHAIRMAN. The important thing which you are here to tell us is that Dam No. 1 ought to be built by all means, and the navigation of the Tennessee

River ought to be improved if that section of the country is to play its part in the development of the inland waterways of the United States.

Mr. LORD. That is the substance of it. I think Dam No. 1 should be built by the Government. It has no connection with the power proposition at all. I think it is a matter of navigation, principally. You will have to put in wing dams and walls to develop the Tennessee River properly.

Mr. HULL. You agree as to this, that this committee at the present time only has before it particularly Dam No. 2 and Dam No. 3, and that if we provide, in connection with the Ford offer, for the development of Dam No. 2 and Dam No. 3, and the locks, that we will make river navigation possible at a cost of $45,000,000 or $50,000,000, and that if we do that, in all probability those who are interested in the further development of river navigation can go before the proper committees and get $1,500,000 for Dam No 1?

Mr. LORD. There is no question about it.

Mr. WRIGHT. If I understand you correctly, your idea is that the navigation possibilities of this river that would grow out of the development of this project overshadow everything else?

Mr. LORD. Yes, sir.

Mr. WRIGHT. The reason you think it would be advantageous to the Government to proceed along the lines of the Ford offer, whether this proposition is turned over to Ford or some one else, is that it carries with it the idea or element that whoever builds the dams under that offer will pay 4 per cent interest and ultimately amortize the whole cost of the construction of the dams?

Mr. LORD Yes, sir.

Mr. WRIGHT. That in the meantime they will pay $35,000 per annum to keep up Dam No. 2 and $20,000 per annum to keep up Dam No. 3, and also, at the expense of the purchaser or lessee, the power houses and all apparatus and machinery will be kept intact.

Mr. LORD. That is a war measure, and I should say I am not qualified to pass judgment on that.

Mr. WRIGHT. I say the lessee or purchaser under such an offer would be required to do those things, and in addition to that to furnish power to operate the gates and the locks? That is the reason you think this would be a very advantageous proposition for the Government?

Mr. LORD. I think Mr. Ford is paying the Government more for the current per annum on his interest charge than he could go out himself and make his own current, and more than that current is worth.

Mr. WRIGHT. In other words, ordinarily, on a navigation project, the Government would be out all its outlay?

Mr. LORD. Without any revenue.

Mr. FISHER. You have very poor judgment of that section of the country.

Mr. LORD. The demands for current in that section——

Mr. FISHER (interposing). You do not know about it; that is what is the matter with you.

Mr. LORD. Perhaps not, but I have been over it a good many times, and I am very closely in touch with that district. It took the Stone and Webster organization quite a while to get a market for 100,000 at the Keokuk.

Mr. QUIN. As I understand it, it is your viewpoint that any progressive, scientific, thinking man is bound to conclude that the process of making nitrogen now in use will be superseded by more economic methods?

Mr. LORD. Very much so.

Mr. QUIN. Then in connection with the water power that will be put there as the result of the building of these dams, Mr. Ford, by paying that money to this Government which he would pay in 100 years will be doing a great benefaction to the Government in taking a white elephant off of its hands?

Mr. LORD. That is exactly it.

Mr. QUIN. That is my idea, too. Mr. Ford can build factories along the banks of that stream, the products of which can be floated down the river in barges if the Government of the United Staes will only develop that stream and improve the navigation. It will be worth many times the money that would be paid for it.

Mr. LORD. That is true, and I hope the Government will develop the Tennessee River, and that you will build those dams. You can do it so it will do a great deal of good down there, and I think it should be done at once.

Mr. QUIN. Your judgment is that the rapid development of that river is the proper and sane course for a lot of progressive statesmen to pursue?

Mr. LORD. Absolutely. You will never get a chance to sell current on that river for as much as you can sell it for to-day.

Mr. QUIN. If a man like Ford gets that thing, if he is able to do it and use that current as you suggested and get that stuff out into the country, that will overshadow whatever expense the Government has paid.

Mr. LORD. There is no question but what Mr. Ford would use the current, because he can create the plants to use it.

Mr. PARKER. I believe you did say something about how much traffic there is in the upper part of the river.

Mr. LORD. Now?

Mr. PARKER. Yes.

Mr. LORD. There is none now. We can not get out at all except by rail.

Mr. MCKENZIE. This has been suggested to my mind by a remark made by Mr. Greene. I take it you are an enthusiast for the development of inland waterways. That being true—and you represent them to a certain extent—all the money that has been invested in the development of inland waterways by the Government has been a direct outlay, without any return whatsoever. In this proposition the Government puts up the $25,000,000 or $50,000,000 to enable Mr. Ford to build these dams, and then to pay 4 per cent interest on the investment, and to repay it in a hundred years. I imagine that would bring great joy to the enthusiast for the development of inland waterways, in that the Government would be getting some of it back, instead of making a direct outlay, and you will advocate that whether the Ford proposition goes through or not.

Mr. LORD. Yes, sir.

Mr MCKENZIE. Your position is that the Government ought to build the dams regardless of whether there is fertilizer or anything else made down there?

Mr. LORD I am a strong believer in the development of inland waterways as a means to enable us to meet the competition of cheaper labor abroad, and to bring our raw materials to the point where they can be most economically manufactured, and it is the most potential subject before your committee or this House to-day, as you will observe if you will study the international labor conditions and the subject of competition with Germany and other countries.

Mr. MCKENZIE. I would be convinced of that if I were not aware of the fact that, in spite of all the millions of dollars which the Government has spent on inland waterways, instead of the transportation over those waterways increasing it has been almost destroyed, and that is something I can not quite understand.

Mr. LORD. I do not wish to take any more of your time.

Mr. HULL. I want to ask you one question. I know what your answer will be, but I think it is worth while to have your answer before this committee. It is being considered and advocated by some of the gentlemen that the Government ought to take over these dams and hydroelectric project as a Government proposition, and then undertake as a Government proposition the manufacture of fertilizer. I wish you would give us your personal opinion on that.

Mr. LORD. I do not want to give you my opinion of the Government going into the fertilizer business, I will frankly say, because you would never do it. I was the only opponent of this business when I told the Governor of Nebraska that the attempt to make potash out of saline salts would break him in competition with outside people. We could get the potash cheaper than we could make it. The potash can be mined and shipped in here cheaper than we can make it.

In the same way nitrogen can be shipped from Chile cheaper than you can make it. I know the installation of chemical developments is always changing and improving, and in a few years these things are likely to be entirely changed.

I wish to make it plain to these gentlemen that I had no thought when I came to Washington of appearing before you. The only communication I had was through Mr. John Howard, who has been in my office several times, and that was in connection with a statement of fact as to the Tennessee River, in connection with information as to the amount for that dam.

The CHAIRMAN. Is Mr. Howard connected with the Farm Bureau?

Mr. LORD. He is president of the American Farm Bureau Federation.

The CHAIRMAN. He is the Chicago representative of that organization, and Mr. Gray Silver represents that organization here?

Mr. LORD. Yes. Mr. Howard is the president of that organization.

Mr. PARKER. Will it be possible, when the witness revises his testimony, to have him indicate what is confidential and what he does not desire to have printed?

Mr. LORD. Yes, sir; I can do that. I am only here to give you information, which is not all concerning my own property.

Mr. PARKER. Some part of it you might not want to have printed.

Mr. LORD. Yes. I thought I would telegraph and ask the other people who employ Mr. Rice, of the Robert W. Hunt Co., their chief engineer——

Mr. PARKER (interposing). You could easily arrange that.

Mr. LORD. I would ask him to telegraph them as to the statement in regard to the Raccoon Mountain iron and coal and as to water transportation.

Mr. PARKER. There is nothing else confidential in your statement as it stands?

Mr. LORD. Nothing, except those things pertaining to the iron deposits. I do not know whether my clients would like to have that published, but I will be glad to make all of it available that I can.

The CHAIRMAN. You will have the right to look over your testimony and mark out that part which you think is strictly confidential, and the committee will bear that in mind.

Mr. LORD. I want to say if anything comes up I will be glad to furnish as much time to give you information as I am asked to if it will help the committee. I am sure Mr. Adams would come from Birmingham if you requested it. He is a very broad-minded man, and is not directly interested in the matter in any way.

(Thereupon the committee adjourned.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Friday, June 2, 1922.

The committee met at 10.30 o'clock a. m., Hon. John C. McKenzie (acting chairman) presiding.

Mr. MCKENZIE. Mr. Mayo, you are here this morning, as I understand it, for the purpose of reporting to the committee the result of your interview with Mr. Ford in connection with the proposal which has been pending before the committee with reference to Muscle Shoals. We will be very glad to hear what you have to say.

STATEMENTS OF MR. WILLIAM B. MAYO, CHIEF ENGINEER, THE FORD MOTOR CO., DETROIT, MICH., AND MR. J. W. WORTHINGTON, WASHINGTON, D. C.

Mr. MAYO. Mr. Chairman, I do not know just what I can say other than what is said in the copy of the offer, as we have changed, and as it appears in the final form. I believe each member of the committee has a copy of that.

(The final offer is as follows:)

DEARBORN, MICH., *May 31, 1922.*

Hon. JULIUS KAHN,
Chairman Committee on Military Affairs,
House of Representatives, Washington, D. C.

MY DEAR CONGRESSMAN: I have carefully examined the amendments made by your committee to my proposal, dated January 25, 1922, for the lease and purchase of the Government's Muscle Shoals properties, and observe with surprise and regret that you have rejected that part of the modified proposal relating to the Government's Gorgas steam plant.

The greater portion of the other changes suggested by your committee have been approved and are incorporated in the accompanying corrected proposal. More than a month ago Mr. Mayo presented to me certain clarifications in the proposal of January 25, to which your committee desired my agreement, which was promptly given. Mr. Mayo explained that while some of your committee were unwilling to accept that part of my offer which included the Government steam-power plant at Gorgas, certain other members of the committee had requested him to ascertain if I would agree to accept an assignment and transfer by the United States of everything now owned by the Government at Gorgas under its contract of December 1, 1917, with the Alabama Power

Co., to which I assented, and Mr. Mayo was instructed to advise your committee that the offer would be revised accordingly. I have been informed that this revision was accepted by your committee, but later, upon reconsideration, you decided to eliminate the Gorgas plant.

I can not consent to eliminate the Gorgas plant, because it is necessary to the economical operation of the Muscle Shoals properties. If my revised offer for Gorgas is rejected, then I must understand that the acceptance of my offer for Muscle Shoals "as a whole and not in part" is refused.

I am sending a final proposal containing all the amendments suggested by the committee, to which I can consistently agree. In doing so, and in view of the fact that my first proposal was signed July 8, 1921, nearly a year ago, and in order to bring these negotiations to a close, I ask that your committee consider this proposal as final, and that no further changes should be expected. I further request that your committee send this final offer to the House, so that its Members may vote for acceptance or rejection. This request is made with the understanding that power to dispose of the plants at Muscle Shoals is vested in the Congress. If the Secretary of War, after his negotiations relative to the first offer, did not have the power to accept or reject it, you will probably agree that your committee has not the power to accept or reject. Moreover, I do not believe that your committee or any member of it wishes to assume the responsibility of accepting or rejecting this final proposal, involving as it does a matter of such great national importance.

If Congress votes acceptance of my offer, we will get on the job at Muscle Shoals at once; but if Congress rejects it, that will be but the beginning of a more determined effort on my part to save Muscle Shoals for the benefit of the public.

I wish to thank you and each member of the committee for the courtesies shown my representatives during the negotiations of the past three months.

Very truly yours,

HENRY FORD.

FINAL PROPOSAL OF HENRY FORD FOR THE COMPLETION AND LEASING OF THE DAMS AND HYDROELECTRIC POWER PLANTS AT MUSCLE SHOALS AND FOR THE PURCHASE OF NITRATE PLANT NO. 1, NITRATE PLANT NO. 2, THE WACO QUARRY, AND THE GORGAS WARRIOR RIVER STEAM PLANT, ALL IN THE STATE OF ALABAMA.

Whereas the United States, through the Chief of Engineers, United States Army, invited the undersigned to submit an offer for the power to be developed at the Muscle Shoals Wilson Dam (hereinafter referred to as Dam No. 2); and

Whereas the undersigned did, under date of July 8, 1921, submit to the Chief of Engineers an offer for the consideration of the President, the Secretary of War, and Congress, which offer proposed a lease based upon the completion of Dam No. 2 and the construction of Dam No. 3 (as designated by the United States Engineers in H. Doc. 1262, 64th Cong., 1st sess., and hereinafter referred to as Dam No. 3) and of their power houses by the United States, and the payment by the undersigned of a fixed annual rental therefor, and proposed to purchase nitrate plant No. 1, at Sheffield, Ala., nitrate plant No. 2, at Muscle Shoals, Ala., Waco Quarry, near Russellville, Ala., and the Warrior steam plant at Gorgas, Ala., and all transmission lines connected with said plants; and

Whereas the undersigned, at the invitation of the Secretary of War, did, on January 11, 1922, submit a modification of his former proposal, based upon the construction and completion by a company to be formed by him of all the work referred to in the offer of July 8, 1921, aforesaid, the actual cost of said work to be borne by the United States, and agreed on behalf of said company to pay 4 per cent of the total actual cost of completing said plants, structures, works, and improvements as annual rental for the lease thereof:

Now, therefore, in lieu of said offer of July 8, 1921, and in accordance with said modification of January 11, 1922, and modifications of January 25, 1922, the undersigned hereby submits to the Secretary of War, and through him for appropriate action by the President and Congress, the following offer, which shall become a binding agreement upon approval of same by Congress:

1. For the purpose of carrying out the terms of this agreement, the undersigned will form a corporation (hereinafter referred to as the company) with a capital stock of $10,000,000 or more, of which at least $10,000,000 shall be paid in in cash, to be controlled by the undersigned, which company will immediately enter into and execute all necessary or appropriate instruments of contract to effectuate this agreement.

2. The company shall complete for the United States, subject to the approval of the Chief of Engineers, United States Army, Dam No. 2, its locks, power house, and all necessary equipment, all in accordance with the plans and specifications prepared, or to be prepared or approved, by the Chief of Engineers, United States Army, and progressively install the hydroelectric equipment in said power house adequate for generating approximately 600,000 horsepower, all the work aforesaid to be performed as speedily as possible at actual cost and without profit to the company. It is understood that the necessary lands and flowage rights, including lands for railway and terminal connections, have been or will be acquired by the United States.

3. The company will lease from the United States Dam No. 2, its power house, and all of its hydroelectric and operating appurtenances, except the locks, together with all lands and buildings owned or to be acquired by the United States connected with or adjacent to either end of the said dam, for a period of 100 years from the date when structures and equipment of a capacity of 100,000 horsepower are constructed and installed and ready for service, and will pay to the United States as annual rental therefor 4 per cent of the actual cost of acquiring lands and flowage rights, and of completing the locks, dam, and power house facilities (but not including expenditures and obligations incurred prior to approval of this proposal by Congress), payable annually at the end of each lease year, except that during and for the first six years of the lease period the rentals shall be in the following amounts and payable at the following times, to wit: Two hundred thousand dollars one year from the date when 100,000 horsepower is installed and ready for service, and thereafter $200,000 annually at the end of each year for five years.

4. The company will further pay to the United States during the period of the lease of Dam No. 2, $35,000 annually, in installments quarterly in advance, for repairs, maintenance, and operation of Dam No. 2, its gates and locks; it being understood that all necessary repairs, maintenance, and operation thereof shall be under the direction, care, and responsibility of the United States during the said 100-year lease period; and the company, at its own expense, will make all necessary renewals and repairs incident to efficient maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house, and will maintain the same in efficient operating condition.

5. At all times during the period of the lease of Dam No. 2 the company will furnish to the United States, free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, United States Army, electric power to an amount necessary for the operation of the locks, but not in excess of 200 horsepower.

6. As soon as the release of suitable construction equipment and labor forces at Dam No. 2 will permit, or at an earlier date if desired by the company, the company shall construct and complete, subject to the approval of the Chief of Engineers, United States Army, for the United States, Dam No. 3, its lock, power house, and all necessary equipment, all in accordance with plans and specifications prepared and to be prepared by the Chief of Engineers, United States Army, or by the company, at its option, and approved by the Chief of Engineers, United States Army, and progressively install the hydroelectric equipment in said power house adequate for generating approximately 250,000 horsepower, all the work aforesaid to be performed as speedily as possible at actual cost and without profit to the company, it being understood that the necessary lands, flowage rights, and rights of way shall be acquired by the United States through an agent to be named by the company.

7. The company will lease from the United States Dam No. 3, its power house, and all of its hydroelectric and operating appurtenances, except the lock, together with all lands and buildings owned or to be acquired by the United States connected with or adjacent to either end of the said dam, for a period equal to the lease term of Dam No. 2 and its hydroelectric power equipment thereat as stated in paragraph 3 hereof, in order that said respective lease terms of the two dams and the hydroelectric equipment thereat shall expire at the same time, the said period to begin from the date when structures and equipment of a capacity of 80,000 horsepower are constructed and installed and ready for service, and will pay to the United States as annual rental therefor 4 per cent of the actual cost of acquiring lands and flowage rights and of constructing the lock, dam, and power-house facilities, payable annually at the end of each lease year, except that during and for the first three years of the lease period the rentals shall be in the following amounts and payable at the follow-

ing times, to wit: One hundred and sixty thousand dollars one year from the date when 80,000 horsepower is installed and ready for service, and thereafter $160,000 annually at the end of each year for two years. Dams No. 2 and No. 3 shall be included in one lease.

8. The company will further pay to the United States during the period of the lease of Dam No. 3 $20,000 annually, in installments, quarterly in advance, for repairs, maintenance, and operation of Dam No. 3, its gates and lock; it being understood that all necessary repairs, maintenance, and operation thereof shall be under the direction, care, and responsibility of the United States during the said 100-year period; and the company, at its own expense, will make all necessary renewals and repairs incident to the efficient maintenance of the power house, substructures, superstructures, machinery, and appliances appurtenant to said power house, and will maintain the same in efficient operating condition.

9. At all times during the period of the lease of Dam No. 3 the company will furnish to the United States, free of charge, to be delivered at any point on the lock grounds designated by the Chief of Engineers, United States Army, electric power necessary for the operation of the said lock, but not in excess of 100 horsepower.

10. For the purpose of enabling the Government to create and provide a sinking fund to retire the cost of Dam No. 3 at the end of the lease period, the company will, at the beginning of the fourth year of the lease period, and semiannually threafter for the remaining term of the lease, pay to the United States Government the sum of $3,505; and for the purpose of enabling the Government to create and provide a sinking fund to retire the cost of Dam No. 2 at the end of 100 years the company will, at the beginning of the seventh year of the lease period, and semiannually thereafter for the remaining term of the lease, pay to the United States Government the sum of $19,868.

11. The company agrees to purchase from the United States and the United States will sell the following properties, namely:

(*a*) All of the property constituting nitrate plant No. 2 (as officially known and designated), including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools, and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred or assigned to a purchaser of nitrate plant No. 2 by the United States, together with the sulphuric-acid units now in storage on the premises.

(*b*) All of the property constituting nitrate plant No. 1 (as officially known and designated), including lands, power plants, buildings, material, machinery, fixtures, equipment, apparatus, appurtenances, tools, and supplies, and the right, license, and privilege to use any and all of the patents, processes, methods, and designs which have been acquired and may be transferred to a purchaser of nitrate plant No. 1 by the United States, but the company shall not be obligated to operate nitrate plant No. 1 as an air nitrogen fixation plant.

(*c*) All of the property constituting the Waco Quarry (as officially known and designated), including rights of way and buildings, material, quarry tracks, machinery, railroad tracks, appurtenances, tools, and supplies.

(*d*) All of the property constituting the steam-power plant, built and now owned by the Government at Gorgas, Ala., on the Warrior River, including lands, rights of way, buildings, machinery, material, fixtures, apparatus, appurtenances, tools, and supplies, and the transmission line from the Gorgas steam plant to nitrate plant No. 2 at Muscle Shoals, and all other transmission lines belonging to the United States and connected with any of the aforesaid Government properties.

12. The company agrees to accept and the United States agrees to assign and transfer to the company all rights, title, interest, powers, and benefit belonging to or that may accrue to the United States or its legal agents as a party to its contract dated December 1, 1917, with the Alabama Power Co. in connection with said Gorgas plant and transmission line, and the company will assume all obligations and liabilities lawfully imposed upon the United States by said contract; but nothing in this paragraph shall be held to affect any question of the validity of any provision of said contract.

13. As the purchase price for the foregoing plants and properties to be conveyed to the company by the United States, the company will pay to the United States $5,000,000 in five installments as follows: One million dollars upon the acceptance of this offer and $1,000,000 annually thereafter until the purchase price is fully paid, with interest at the rate of 5 per cent per annum

on deferred payments, with the privilege of anticipating any or all such payments, possession to be delivered upon payment of the first of said installments, and deeds of conveyance to be delivered when full payment for said property has been made. Each of said deeds shall refer to or contain the provisions of this offer and said deeds shall be so drawn as to make such provisions covenants running with the land.

14. This proposal contemplates and it is agreed that the purchase price for the property aforesaid shall not be diminished by reason of depreciation due to use or wear of buildings, machinery, and equipment or to the action of the elements, nor shall any claim be made for losses in or diminution of quantity of tools and supplies due to upkeep and maintenance during the period between the date hereof and the date of delivery of possession of said property; it being further understood that no inventory of the property need be taken, but that due care will be exercised by the United States in preserving and safeguarding the aforesaid real and personal property intact until possession thereof passes to the company. If any part or parts of the aforesaid plants necessary for proper operation of same have been removed by the United States, said part or parts shall be returned when possession of said plants passes to the company. Deeds of conveyance of real property shall warrant the title to be good and unencumbered, but in accordance with and subject to the provisions set forth in paragraph 13 hereof.

15. Inasmuch as the manufacture of commercial fertilizers for our soils and the sale and distribution of the same to the farmers and other users thereof constitute one of the principal considerations of this offer moving to the Government of the United States and its people, the company expressly agrees that it will continuously throughout the lease period operate nitrate plant No. 2, using the most economical source of power at the approximate present annual capacity of its machinery and equipment in the production of nitrogen and other commercial fertilizer, mixed or unmixed according to market demand (said capacity being equal to approximately 110,000 tons of ammonium nitrate per annum, containing approximately 40,000 tons of fixed nitrogen). If during the lease period said nitrate plant No. 2 is destroyed or damaged from any cause, the company agrees to restore such plant within a reasonable time to its former capacity, and further agrees:

(*a*) To determine by research whether by means of electric furnace methods and industrial chemistry there may be produced on a commercial scale fertilizer compounds of higher grade and at lower prices than farmers and other users of commercial fertilizers have in the past been able to obtain, and to determine whether in a broad way the application of electricity and industrial chemistry may accomplish for the agricultural industry of the country what they have economically accomplished for other industries, and if so found and determined, to reasonably employ such improved methods.

(*b*) To maintain nitrate plant No. 2 in its present state of readiness or its equivalent, for immediate operation in the manufacture of materials necessary in time of war for the production of explosives.

16. In order that farmers and other users of fertilizers may be supplied with fertilizers at fair prices and without excessive profits, the company agrees that the maximum net profit which it shall make in the manufacture and sale of fertilizer products shall not exceed 8 per cent of the fair actual annual cost of production thereof. In order that this provision may be carried out the company agrees to the creation of a board of not more than nine voting members, chosen as follows: The three leading representative farm organizations, national in fact, namely: The American Farm Bureau Federation, the National Grange, the Farmers' Educational and Cooperative Union of America or their successor or successors (said successor or successors to be determined, in case of controversy, by the Secretary of Agriculture) shall each designate not more than seven candidates for said board in the first instance and thereafter, for succession in office, not more than three candidates. The President shall nominate for membership on this board not more than seven of these candidates, selected to give representation to each of the above-mentioned organizations, said nominations to be made subject to confirmation by the Senate, and there shall be two voting members of said board selected by the company: *Provided*, That not more than one shall be nominated by the President from the same State; that if the Senate shall not confirm all of said seven nominees the President shall send additional names from the said list of candidates until the Senate shall have confirmed seven: *Provided further*, That if either or any of said farm organizations or its or their successors by reason of the expira-

tion of its or their charter or ceasing to function or failing to maintain its organization or for any cause or reason should decline, fail, or neglect to make such designations, then the Secretary of Agriculture shall make such designation or designations for such or all of said organizations as may so decline, fail, or neglect to make such designation; and if such designation is made by the Secretary of Agriculture for only one or two of said organizations, then such designation shall be made so as to give the remaining organization or organizations the same right and in the same proportion to designate candidates for said board as in the first instance and just as though all of said organizations were making such designations: *Provided, however*, That a failure to make designations at any one time shall not thereafter deprive any organization of its original rights under this section: *And provided further*, That the terms of office of the first seven candidates nominated by the President and confirmed by the Senate on the designation of said farm organizations shall be as follows: Two for a period of two years, two for a period of four years, and the remaining three for a period of six years, and thereafter the nominations for membership on said board made by the President, except for unexpired terms, shall be for six years each. None of the members of said board shall draw compensation from the Government, except that any which may be nominated and confirmed on the designation of the Secretary of Agriculture under the provisions hereof shall receive from the Government their actual expenses while engaged in work on said board. A representative of the Bureau of Markets, Department of Agriculture, or its legal successor, to be appointed by the President, shall also be a member of the board serving in an advisory capacity without the right to vote. The said board shall determine what has been the cost of manufacture and sale of fertilizer products and the price which has been charged therefor, and, if necessary for the purpose of limiting the annual profit to 8 per cent as aforesaid, shall regulate the price at which said fertilizer may be sold by the company. For these purposes, said board shall have access to the books and records of the company at any reasonable time. In order that such fertilizer products may be fairly distributed and economically purchased by farmers and other users thereof, the said board shall determine the equitable territorial distribution of the same and may in its discretion make reasonable regulation for the sale of all or a porton of such products by the company to farmers, their agencies or organizations. If and when said board can not agree upon its findings and determinations, then the points of disagreement shall be referred to the Federal Trade Commission (or its legal successor) for arbitration and settlement, and the decision of said commission in such cases shall be final and binding upon the board.

17. Whenever in the national defense the United States shall require all or any part of the operating facilities at nitrate plant No. 2 for the production of materials necessary in the manufacture of explosives or other war materials, then the United States shall have the immediate right, upon five days' notice to the company, to take over and operate the same, and the company will supply the United States with hydroelectric power necessary for such operations, together with the use of all patented processes which the United States may need which the company owns or has the right to use. When required for national defense any of the company's personnel and operating organization necessary for operating any part of nitrate plant No. 2 in the manufacture of materials for explosives, or other war materials, shall be at the disposal of the United States. For the facilities and services aforesaid the United States shall protect the company from losses occasioned by such use and shall return the said property in as good condition as when received and reasonably compensate the company for the use thereof. All duly authorized agents and representatives of the United States shall have free access at all reasonable times to inspect and study all of the operations, chemical processes, and methods employed by the company at nitrate plant No. 2, provided that such agents and representatives shall not use the information and the facts concerning any of the company's operations, except for the benefit and protection of the United States.

18. In order that said company may be supplied with electric power and the farmers and other users with fertilizers after the termination of the said 100-year leases, should the United States elect not to operate said power plants but determine to lease or dispose of same, the company shall have the preferred right to negotiate with the United States for such lease or purchase, and upon such terms as may then be prescribed by Congress.

19. In addition to any other remedies that may be possessed by the United States, and as a further method of procedure in the event of the violation of any of the terms of this proposal or any contracts made in furtherance of its terms, the company agrees that the Attorney General may upon the request of the Secretary of War institute proceedings in equity in the District Court of the United States for the Northern District of Alabama for the purpose of cancelling and terminating the lease of Dam No. 2 or Dam No. 3, or both of them, because of such violation or for the purpose of remedying or correcting by injunction, mandamus or other process, any act of commission or omission in violation of the terms of this proposal or any contract made in furtherance thereof.

20. The above proposals are submitted for acceptance as a whole and not in part. Upon acceptance, the promises, undertakings, and obligations shall be binding upon the United States, and jointly and severally upon the undersigned, his heirs, representatives and assigns, and the company, its successors and assigns; and all the necessary contracts, leases, deeds, and other instruments necessary or appropriate to effectuate the purposes of this proposal shall be duly executed and delivered by the respective parties above mentioned.

Approved and signed by me at Dearborn, Mich., this 31st day of May, 1922.

HENRY FORD.

Mr. MCKENZIE. Will you kindly explain the changes made in the fertilizer provision. There is a change of language there. What is the effect of that as you understand it?

Mr. MAYO. The effect as we have it, I think, is that it covers practically all that the committee has asked for. We were of the opinion that the paragraph as written by the committee bound us to make the whole product in a mixed form, but realizing that a great deal of it will probably be used in the unmixed form, as well as in the mixed form, we changed that.

Mr. QUIN. When that matter was up, that question was before the committee, and we decided, as I understand it, that it was not intended to do that thing.

Mr. MAYO. Mr. Ford, however, wanted to keep as near as he could to what it was originally, so we have made a compromise between what we had originally and the changes that were suggested. We did not feel that we had much time to study the matter; it was a thing we had to act on quickly, and we came to the best conclusion we could, trying to meet the wish of the committee as near as we could.

Mr. MCKENZIE. As I understand it, you can make it in the mixed form, and you can manufacture one or more ingredients.

Mr. MAYO. Yes. There is a great deal of call, as you know, for phosphate, by itself. It is used a great deal now, and it would be rather foolish it seems to me to bind us to mix something, if there is a good demand for it unmixed.

Mr. MCKENZIE. You did not change the provision that requires the manufacture of 110,000 tons of ammonium nitrate?

Mr. MAYO. No, sir. Inasmuch as that plan is built to make 110,000 tons of ammonium nitrate, we prefer to keep it in that form, so we added to that, "or an alternative of 40,000 tons of fixed nitrogen." They are both the same thing, as we see it. It is just a little more explanatory.

Mr. HULL. I do not know that I have the correct idea of the change, but it seems to me as the committee had it there was no provision for ceasing the manufacture of the fertilizer provided the market was overstocked. As you have it, that is provided for by the use of the expression "market demand." Is that not correct?

Mr. MAYO. Yes, sir.

Mr. HULL. That is really the big change you have made. We intended, as I understood it, that you should have a right, as Mr. Quin has said, to change the position of the fertilizers. I do not know whether we had it there correctly, but we intended to give that right.

Mr. MAYO. We did not think you did. It tied us up.

Mr. HULL. You fixed it in your language so that you would surely have it?

Mr. MAYO. Yes, sir.

Mr. HULL. There was not any provision, as I understand, as we had it, for the cessation of the manufacture if the market would not absorb it. I am not in opposition to the proposition, but I want to get it fixed in my mind. It seems to me that is the real big change.

Mr. MAYO. We had always thought that nobody would expect us to make it and pile it up if there was no demand for it.

Mr. PARKER. What is that?

Mr. MAYO. Nobody could expect us to make fertilizer if there was no demand for it. We can not see that any such occasion should arise.

Mr. MILLER. I invite your attention to the phraseology on page 14 and ask you if that phraseology carries out your contention? This is the way it reads: "Operate nitrate plant No. 2 in the production of nitrogen and other commercial fertilizers, mixed or unmixed, according to market demands." That means market demands for mixed or unmixed fertilizer, not as to the quantity, does it not?

Mr. HULL. I am just trying to get Mr. Mayo's idea about this proposition.

Mr. MILLER. I am asking whether the aforesaid language does it.

Mr. MAYO. I think it would refer to both, would it not?

Mr. MILLER. No; I think not.

Mr. MAYO. It really does not matter to us. We are willing to take a chance. If there is no demand for it, we would not expect Congress to make us make it and stack it up when we can not sell it.

Mr. WURZBACH. Is it not a fact in view of the powers given to this board provided for in the offer to "determine what has been the cost of manufacture and sale of fertilizer products, the price which has been charged therefore, and to determine what is the fair price," do you not think that would give the board power to control the details.

Mr. MAYO. I think so; yes, sir.

Mr. WURZBACH. Is not that the purpose of the creation of this board?

Mr. MAYO. It is; yes, sir.

Mr. WURZBACH. To attend to the detailed method of the manufacture and to provide for meeting the demand for mixed or unmixed fertilizer.

Mr. MAYO. We are still of the opinion that our original paragraph comes nearest to hitting the nail on the head than anything that has been written.

Mr. MORIN. You have practically put the original paragraph back in your offer.

Mr. MAYO. We have elaborated on it.

Mr. MORIN. Not materially.

Mr. HULL. Is it your understanding that this board decides, or would have the right to decide, as to when the market demanded the manufacture of this fertilizer?

Mr. MAYO. I would think so.

Mr. HULL. That is your understanding?

Mr. MAYO. That is, if we could not dispose of the fertilizer and commenced to pile it up I think the board would be our first relief. We have never thought that it was necessary to say so.

Mr. HULL. You would not expect the Government to depend upon your company to decide upon the market?

Mr. MAYO. No; that is why the board is provided for.

Mr. HULL. There should be some one who is going to decide that from a neutral standpoint.

Mr. MAYO. Exactly; that is why the board is there.

Mr. JAMES. Is it not more because you had the idea that our language compels you to have the finished fertilizer and you would have to mix it and ship it out? Were you not thinking of that more than anything else? You were not thinking there would be such a contingency arise where you would have to pile it up? What you were thinking of was the fact that you could mix it according to the demand.

Mr. MAYO. We could sell any ingredient by itself without mixing it—sell it mixed or unmixed.

Mr. JAMES. According to the market demand, you could sell it mixed or unmixed?

Mr. MAYO. Yes, sir.

Mr. JAMES. By your language you do not mean that you would be expected to pile it up because there would not be a demand.

Mr. MAYO. We do not expect that, but we expect there will be a growing demand.

Mr. CROWTHER. What is the reason for the change in the language as regards the restoration of the plant where it says, "restore such plant within a reasonable time to its former capacity, for all purposes"?

Mr. MAYO. This is the cyanamid process, and we might not rebuild it if it should burn down. I do not know how we would change it. It all depends upon how the processes progress.

Mr. MILLER. You would have to build some sort of a nitrate proposition there in order to conform to that portion of your offer whereby you agree to hold your plant in readiness for war purposes.

Mr. MAYO. The mere fact that we bind ourselves to hold it always in readiness seemed to us to make the rebuilding paragraph sort of a superfluous paragraph. We have to rebuild it as many times as it burns down.

Mr. MILLER. It seems that you are not objecting to that?

Mr. MAYO. No.

Mr. MILLER. There are two premises upon which the plant is to be perpetuated: First, it is to be kept up from the military standpoint, and also for the manufacture of fertilizer.

Mr. MAYO. The way it was, Mr. Ford did not know where it would lead to, and he was of the opinion that that could be done without having the paragraph there at all. So we struck out the words "for all purposes."

Mr. PARKER. I want to refer to the fertilizer provision. As we drew it we had it that you would make fertilizer containing 40,000 tons of fixed nitrogen, and that you would buy and manufacture all of the remaining additional fertilizer ingredients which would make a good fertilizer. But you have scratched that out.

Mr. MAYO. Not wholly, Mr. Parker.

Mr. PARKER. You have simply said that you will operate the plant that is there. If that plant will not work, you do not say you will make other plants to do that. You are to operate nitrate plant No. 2.

Mr. MAYO. We say at 110,000 tons capacity.

Mr. PARKER. But you are to operate nitrate plant No. 2 as a cyanamid plant; you promise to operate it.

Mr. MAYO. We do not promise to operate it as a cyanamid plant.

Mr. PARKER. It is a nitrate plant which is there, which you say you are going to maintain and preserve it. You say you will operate it, and yet you do not say you will buy other materials to make a balanced fertilizer or make those materials. There is nothing in there about making phosphates.

Mr. MAYO. I think that is fully covered. We agree to make 110,000 tons of ammonium nitrate, which is 40,000 tons of fixed nitrogen, as it states there, and we have agreed——

Mr. PARKER (interposing). You agree to do it by operating nitrate plant No. 2; and if that turns out to be a very uneconomical way of making fixed nitrogen, so that it will not pay by any market, you do not provide, as we did, that you will use the most economical way of making it. You say you will use the most economical source of power.

Mr. MAYO. I think we do.

Mr. PARKER. Where do you do it? Point it out, if you please.

Mr. MAYO. We changed another paragraph some time ago in connection with our research, in which we say, "And if so found and determined, to reasonably employ such improved methods."

Mr. PARKER. This is the contract, and this is a contract not to make fertilizer in certain quantities, but is a contract to operate nitrate plant No. 2, which is a cyanamid plant, and has to be preserved as such.

Mr. MAYO. No, sir.

Mr. PARKER. Anyway it is a contract to operate nitrate plant No. 2, using the most economical source of power. And then you say, "in the production of nitrogen and other commercial fertilizers, mixed and unmixed,"; there is nothing there about making phosphates, is there?

Mr. MAYO. No, sir.

Mr. PARKER. There is nothing there in regard to potash.

Mr. MAYO. No, sir.

Mr. PARKER. There is no machinery provided there for mixing potash, nitrogen, and phosphate?

Mr. MAYO. But we say, "mixed or unmixed."

Mr. PARKER. But you do not say you will make mixed fertilizer, if it is desired. You do not say you will get the most economical way of doing it, so far as nitrogen is concerned. The difference is that the old language provided, under the wording as we had it, that you would manufacture there, or at some nearby plant, 40,000 tons of fixed nitrogen, manufacturing it into complete fertilizer. The langauge provided by the committee is, "or at such other plant or plants adjacent or near thereto as it may construct, 40,000 tons of fixed nitrogen, and will manufacture the same into complete fertilizer and fertilizer materials, and for that purpose it will manufacture or otherwise procure the

remaining necessary fertilizer ingredients." You leave that out, and leave in nothing but a provision for operating nitrate plant No. 2 in the production of nitrogen, and if that does not pay you are at liberty to stop.

Mr. MAYO. I do not think so.

Mr. QUIN. You do not think they could stop the manufacture of it.

Mr. PARKER. Yes; if it did not pay to manufacture at plant No. 2.

Mr. MAYO. We do not say anything about its paying or not, do we?

Mr. PARKER. You say according to the demand of the market, so it has to be a demand that will pay.

Mr. MAYO. I do not think that is a fact.

Mr. HULL. I want to ask Mr. Mayo one or two questions. I wonder if we can not agree upon language which will settle this entire matter.

Mr. PARKER. We are told Mr. Ford will not agree to any changes. We are told that in a letter which contains that.

Mr. HULL. I understand that Mr. Mayo's attitude is a friendly one. I would suggest on page 18, where we lay down the duties of this board, that we might insert the following language, and I will ask you if you have any objection to it, "any cessation or change in the manufacture of nitrogen or its equivalent shall be subject first to the approval of this board."

Mr. MAYO. Where is that?

Mr. HULL. That is at the top of page 18.

Mr. MAYO. You propose to add something?

Mr. HULL. Yes. I am asking you whether you would object to adding to the language fixing the duties of the board additional language providing that the cessation of manufacture or the change in the process of manufacture shall first have the approval of the board. They are always there, and they know the condition of the market. I am not bound by that language; I simply suggest that at the top of page 18 this language might be inserted: "Any cessation or change in the manufacture of fixed nitrogen, or its equivalent, shall be subject first to the approval of the board."

Mr. MAYO. I do not think we want to be subject to the board as to how we will make our fixed nitrogen, because it is none of their business so long as we do it.

Mr. HULL. If the market would stand it?

Mr. MAYO. I am not talking about the market; I am talking about the kind of process we would use.

Mr. PARKER. You say, Mr. Mayo, that your only objection to our clause as we drew it was that it provided, as you thought, that you could not sell that material separately, if it was demanded for fertilizer.

Mr. MAYO. Yes, sir.

Mr. PARKER. Would you be satisfied to take our language as it stands, that is Mr. Miller's amendment, and simply add at the end of it a statement that if there be a demand for any of said materials separately for fertilizer they may be so sold? We like our language; it makes you make the fertilizer.

Mr. MAYO. We think our language makes us make the fertilizer.

Mr. PARKER. I do not think so. What I wanted to do was to see if we could come to an agreement as to this clause by simply leaving the language as we had it, and then adding after the word "fertilizer," at the end, after the expression "properly balanced commercial fertilizer," the words "*Provided, however*, That if there be a demand for any of said ingredients separately for fertilizer, they may be sold separately."

Mr. MILLER. Permit me to make this suggestion, that we might add this language: "Nothing in this contract shall prohibit the manufacture and sale of individual elements."

Mr. PARKER. Or add at the same place, as suggested by Mr. Miller, "nothing shall prohibit the manufacture and sale of individual elements if such sale be made for fertilizer and there be a demand therefore." That would get rid of the difficulty you object to and would leave our language which we much prefer.

Mr. MAYO. You may prefer your language, but, of course, we have the same end in view, and we prefer our language.

Mr. PARKER. But you leave out a good many things.

Mr. MAYO. I do not think we do, Mr. Parker. I take issue with you on that.

Mr. PARKER. Then why would not this cover it?

Mr. MAYO. If you can possibly prove to me that our language does not cover it, that might make a difference, but you have not done that as yet.

Mr. PARKER. You say there is no objection to our language except in connection with the question of mixing the ingredients.

Mr. MAYO. I will modify that a little bit. The paragraph as you have written it is very long, and because of its length we tried to boil it down to a shorter paragraph and still preserve the essential meaning, and we think we have covered all the points.

Mr. PARKER. Is there any other points except the question of mixing the fertilizers to which you object, so far as our language is concerned?

Mr. MAYO. I am not so sure about that. I do not remember about that.

Mr. PARKER. You remember no objection to that. I would like an anwer to my question—whether the provision I suggested interlining there would not cover that question completely?

Mr. WORTHINGTON. I would like to suggest that that be answered in this way, by making a practical application: Admitting that the draft of this section as you made it had that intention, I would like to know how a user of phosphoric acid in Mr. McKenzie's State could get it under the section as you have drawn it.

Mr. PARKER. I proposed an amendment which would allow you to sell phosphoric acid separately, and I am still pressing my question as to whether my amendment as I suggested would not cover that particular question.

Mr. WORTHINGTON This section as drawn in the signed offer allows it. You could send phosphoric acid to Mr. McKenzie's State.

Mr. PARKER. It does not bind you to make phosphoric acid at all.

Mr. WORTHINGTON. It binds you to make mixed or unmixed fertilizer, as the market demands.

Mr. PARKER. I again ask the question whether the amendment I suggested would not cover that point.

Mr. MAYO. I am not sure it would.

Mr. PARKER. You will not answer the question "no."

Mr. MAYO. No, sir.

Mr. PARKER. You can not see any reason why it does not?

Mr. MAYO. I can not say at the moment. All I can say is that we endeavored to cover all the points.

Mr McKENZIE. I simply wanted to make this suggestion in connection with Mr. Parker's question. It occurs to me that you are bound under your contract to manufacture 40,000 tons of fixed nitrogen, and if the contract is drawn so you have to make a completely balanced fertilizer, you would have to use all of the 40,000 tons. If you are going to modify that and say you can sell part of this separately, it seems to me, in all fairness it should be stated in the contract that that should be within the limits of the amount to be produced, or something to that effect. In other words, that you ought not to be required to manufacture 110,000 tons of ammonium nitrate and also the other material on the side.

Mr. GREENE. You have touched on this matter, Mr. Mayo, in reference to the phrase "according to market demand," on page 14. That really seems to me to be the main sticker in the whole proposition, because we could probably reconcile ourselves on the details as to manufacturing a complete fertilizer with some liberty to manufacture parts. But the difficulty is in the interpretation, because nobody can foresee what the future holds in the fertilizer business. It may not be thought practicable 10 years from now to stick to the kind of fertilizer that is made now, and you want some liberty. Certainly, if you are going to carry out the intention you ought to have it. But it does seem to me that the phrase "according to market demands" is awful loose.

Mr. MAYO. It may be.

Mr. GREENE. You can see you get two things there. Market demands might be quantity in kind of fertilizer, or market demand might be the kind of fertilizer without regard to quantity. There are two phases, and they are not reconcilable exactly either. You can take whichever one you want to meet the circumstances which you are in. I am not suggesting any lack of good faith on the part of the present intendance on the part of this contract, but we are looking ahead 100 years. There is no question whatever about the present parties keeping their word; I am not worried at all about that.

Mr. MAYO. What nettles me somewhat is that there seems to be an idea that there is a "nigger in the woodpile" in this thing. There are not any "niggers in the woodpile" in it. We are using our best endeavors to try to straighten this thing out, and to try to get somewhere, and I think I have shown that.

Mr. GREENE. This is all I suggest, with a due appreciation of your intention, whether that phrase, "according to market demands" does not have a dual interpretation?

Mr. MAYO. It may have, or it may not.

Mr. GREENE. It has that peculiar significance It may mean "according to market demand" as to quantity irrespective of kind, or it may mean as to kind, irrespective of quantity. They are two irreconcilable things.

Mr. MAYO. I think it means both.

Mr. WORTHINGTON. Woudld not that question be settled by this board at once?

Mr. GREENE. By whom?

Mr. WORTHINGTON. By this board.

Mr. GREENE. But the board can not direct your formulas.

Mr. WORTHINGTON. But they could pass upon the market demand as to whether it did or did not.

Mr. GREENE. Would you not, if you were the first person in a contract, even though it had to be carried out beyond your lifetime, want a guaranty to your properties of some literal performance of a presently understood wording, rather than to depend upon a judicial determination that might be taken 50 years from now?

Mr. MAYO. It will be better.

Mr. WRIGHT. May I say a word or two about fertilizer, Mr. Chairman? I may not be in accord with any other member of the committee about that language, and what our real purpose and intentions are, but being a user of fertilizer, knowing something about the practical use of it, I want to express myself briefly. If understand the intention of the committee about fertilizer, it is this: We all want to bind Mr. Ford, or his company, for 100 years to utilize plant No. 2 during times of peace for the manufacture of fertilizer in a broad sense. But in doing that I do not understand that we want to bind him to adhere to the present methods, which is to mix nitrogen, phosphate, and potash together, they being now the principal ingredients, adding a filler or not adding a filler. As I understand, we want to get away from that procedure. In other words, we want to revolutionize the fertilizer business. To do that we want to bind him to language which will absolutely require him to produce these fertilizers, but in doing so to be permitted to sell it as a balanced fertilizer, or to sell the ingredients separately.

In my country, in Georgia, we use a good deal of nitrate of soda. We do not mix it with anything in the world. We use it on wheat, oats, and corn and it has a wonderful effect, but we do not put anything with it.

If I understand the process of this plant correctly, there can be produced there some substance which can be substituted for nitrate of soda, and that I can now use that as I am now using the Chilean nitrate.

I understand further that there can be produced there phosphoric acid. That is also used separately in my country. A great many farmers in Georgia use it without any mixture at all. But at the present time, in order to get 15 per cent of phosphoric acid, they have to buy 2,000 tons of mixture, and that contains but 15 per cent of the actual phosphoric acid.

Mr. GARRETT. And they have to pay freight on 1,700 pounds of sand.

Mr. WRIGHT. That is the idea. If the farmer wants to buy acid phosphate he ought to be permitted to do it without buying these other mixtures, and he may buy it in concentrated form instead of getting this dirt along with it. That is all involved here.

Now, I am sure my friend Mr. Miller and I agree about this matter. He has employed certain language which I have no doubt he believed would permit Mr. Ford to do the very things I am talking about, but I do not believe his language does it. I believe under the construction of this language that Mr. Ford and his successor would be required to use every pound of nitrogen produced at this plant by mixing it with other ingredients, and there would not be a pound of it left to be used as a substitute.

Mr. QUIN. This language which these gentlemen have brought back does that very thing.

Mr. WRIGHT. I am coming to that. I am sure Mr. Miller agrees with me—I do not mean about his construction of the language, because I believe he thought he had accomplished what I am talking about, and I believe Doctor Whitney thought it would do that—but I have studied the language and I think this last qualification thwarts the whole purpose. I want to read it, and I want you to consider it carefully: "It will continuously throughout the lease period of 100 years except when prevented by wars, accidents, fires, unavoidable strikes, acts of Providence, manufacture annually at nitrate plant No. 2, or at such other plant or plants adjacent or near thereto as it may construct, 40,000 tons of fixed

nitrogen." What will it do with it? "And will manufacture the same into complete fertilizer and fertilizer materials."

I think Doctor Whitney thought that would permit whoever operated this plant to make either mixed or unmixed fertilizer or sell the ingredients separately. But there is a comma after the word "materials." Here is the trouble: "and for that purpose it will manufacture or otherwise procure the remaining necessary additional fertilizer ingredients in sufficient quantities proportional to the said 40,000 tons of fixed nitrogen and mix and blend such fertilizer ingredients with or without binder or filler, in such proportion as to make properly balanced commercial fertilizer."

Mr. PARKER. Suppose one of the products is properly balanced already and does not need anything additional to make fertilizer material?

Mr. WRIGHT. As I construe it every pound would have to be utilized to make it proportional to the other things. If I am right about it, I think this language thwarts the whole thing.

Mr. GREENE. You lawyers have an old maxim not to set up in your declaration more than you are ready to prove. Are you not getting rather involved in attempting to lay down for a process of a hundred years to come the details of the manufacture of this product? It seems to me we want language that would simply say Mr. Ford is required to make fertilizer, or parts of fertilizer corresponding to the approved standard of the times, instead of trying to define the process simply tell what kind of a product he must have.

Mr. QUIN. It occurs to me these representatives of the farmers, in the original draft, fixed up the very best language in the world, which did protect them, and this committee took that out.

Mr. WURZBACH. May I ask you a question?

Mr. WRIGHT. Certainly.

Mr. WURZBACH. Do you not think, Mr. Wright, that the purpose of providing for the appointment of this board was to leave the details to them? Section 16 reads as follows:

"In order that the farmers and other users of fertilizers may be supplied with fertilizers at fair prices, the company agrees that the net profit which it shall make in the manufacture and sale of fertilizer products shall not exceed 8 per cent of the fair actual annual cost of production thereof." Then it goes on, "In order that this provision may be carried out, the company agrees to the creation of a board." And then it provides for the membership of that board. Do you not think that the determination of fair prices which is left to this board involves all of these detailed questions as to the composition of the fertilizer and that sort of thing? Do you not think that is the best way to secure what the farmers want, taking into consideration the long period of time, 100 years, the life of the lease? Do you not think that is the best way to do it, and that it is the best security for the farmers?

Mr. WRIGHT. I think your point is well taken.

Coming now to Mr. Greene's question, I do not doubt but that a hundred different expressions could be employed, or that language could be used in a hundred different ways, any one of which you would say, or Mr. Miller would say, or I would say, would carry out what you have in mind. I do not think we ought to be sticklers for any particular language. There are many ways in which it could be expressed.

But let us review this. First of all, the farmers have gotten hold of this situation, and they have some smart men among them. They worked on the language that they thought would effectually carry out what we have in mind. We raised some objection to that, and they modified it somewhat, clarified it, as we would say. We have stated it here, and I want to say in that connection I am like some people who hear music. I know good music. I may not know how to render it myself, but I know when it is rendered. So it is in the case of a lawyer. I want to say Mr. Miller is a good lawyer, not a mere lawyer in name only, and he studied this matter profoundly, and he believes he has worked it out. But one man would construe it one way and another man another way.

Mr. GREENE. That is what I am seeking to avoid. In multiplying phrases you multiply doubt of their interpretation. When we come to positive language it has to bear the meaning of the terms in which it is read. You have gotten away from the old-fashioned English presentment of the question of murder; you have got down to the fact that he unlawfully killed a man. Can

we not do something about the fertilizer business? The Lord only knows what a hundred years will do in a matter of processes.

Mr. WRIGHT. Laymen have criticized that sort of language during all times; but this fact remains, that out of the experience of the centuries they have never devised a way by which they could improve on the old phrasing. It looks as if in all these centuries we would have gotten away from that, if there was a practical way to do it.

Mr. MAYO. Mr. Ford says if we were any good we could write the whole thing on the front of one page and get all the essential things in.

Mr. GREENE. Simplicity of language is always its greatest success.

Mr. WRIGHT. I have always found that where people have undertaken to do that sort of thing in the way Mr. Ford thinks it should be done they have always found that they needed a good lawyer to get them out of some difficulty.

Mr. GREENE. Because those who pass upon the interpretation of the words and the use of them are lawyers themselves.

Mr. WRIGHT. Mr. Parker seems to be wedded to the idea that this plant, under the language used here, has to be operated by the use of the cyanamid process. We all understand, from having heard this testimony, that the industry is in its infancy, and we do not know what a year or 10 years may bring forth.

After having said what I have, I want to say that I believe this offer worded as it is effectually covers what we all have in mind. It is a technical situation, and it is a difficult thing to express. In the first place, we want to have some basis by which we can bind Mr. Ford and his company to produce fertilizer. What is going to be the basis? Some thought the power would be the proper basis; then they got away from that. The fact remains that all we have there now is a plant which will produce 110,000 tons of ammonium nitrate. That is what it is designed to do, and we all agree that the 110,000 tons of ammonium nitrate contains 40,000 tons of fixed nitrogen. There is the real fertilizer.

Mr. PARKER. But it says only by the operation of this particular plant. If you leave out the operation of plant No. 1 and simply say Mr. Ford will produce at that place 40,000 tons of fixed nitrogen, you have done what Mr. Miller has done.

Mr. WRIGHT. It covers both. When we get to Mr. Ford's language, I do not know whether it can be improved on or not.

Mr. HULL. You know something about a contract. You are a lawyer?

Mr. WRIGHT. Yes.

Mr. HULL. Do you not think when you use the expression "Aoccrding to market demands," you vitiate the contract entirely. I am not a lawyer, but I venture to say I have made more contracts than most of the men around this table, and if I ever made a contract with that language in it, it would mean anything or nothing. I will put this question up to you: If Mr. Ford is to have the right to interpret what the market demand is, it means nothing. Suppose he would stop the manufacture of this fertilizer and he would say, "We have the right to stop that under this contract; the market does not demand it." There is no court on earth but what would say he had a perfect right to interpret it in that way. If he will let this board interpret this language, that is a different proposition; but if the Ford company is to interpret that proposition and interpret that expression "According to market demands," that amounts to nothing and it will be worth anything 50 years from now.

Mr. WRIGHT. This language you have criticized goes further toward meeting the very point you have made than anything that has been done. You have insisted that nobody would require Mr. Ford to pile up thousands of tons of this stuff with no market for it. The market is bound to regulate this proposition, or else all that we are talking about goes for naught. If there is no market for the fertilizer, we are wasting our time here discussing fertilizer. There is bound to be useful fertilizer and a market for it, but there may not be a market for one particular kind always. This language permits them to manufacture what the market demands and what is needful. It is happy language, as I construe it.

Mr. HULL. But supposing the Ford company in 50 years finds it more profitable to sell those things than to manufacture fertilizer, and they say, "We can manufacture a lot of this stuff that we can not sell," and still pile it up and say that they can not sell it.

Mr. WRIGHT. But they can not do that under the contract. Here is the language he employs. He agrees that he will "operate plant No. 2, using the most economical source of power, at the approximate present annual capacity of the

machinery and equiment in the production of nitrogen and other commercial fertilizer, mixed or unmixed, according to market demands (said capacity being equal to approximately 110,000 tons of ammonium nitrate per annum, containing approximately 40,000 tons of fixed nitrogen)."

When he does that he has done all that that plant has been designed to do, and can do. He has produced either the completed fertilizer or compounds or ingredients that there is a market for. What more can he do?

Mr. GREENE. The only question is as to the interpretation of the words "market demands," and who shall be the judge, and who will interpret them as to whether they shall be interpreted in the light of present day understanding or the understanding of 50 years from now? In other words, whether it is to be the current understanding or otherwise.

Mr. WRIGHT. In connection with the next section I maintain that these words are elastic and cover every thought you have.

Mr. GREENE. But I did not merely mean that side of it. It seems to me they are rather alternative.

Mr. WRIGHT. But that will be regulated by the market demand.

Mr. GREENE. But we have not officially standardized markets in this country. Somebody must sit officially as umpire.

Mr. WRIGHT. Suppose we adhere to the language we put here about the fertilizers and say he is required to mix them proportionately. We have as many different proportions as there are people who use it.

Mr. PARKER. That is what I maintain, that it is elastic as it stood.

Mr. WRIGHT. Different men may want different proportions.

Mr. GREENE. I think we are falling apart because we are not construing the language together. I am trying to avoid too much detail and surplusage. I am trying to get very simple language.

Mr. WRIGHT. You might employ some language that would suit exactly. He agrees to "determine by research whether by means of electric furnace methods and industrial chemistry there may be produced on a commercial scale fertiliezr compounds of higher grade and at lower prices than farmers and other users of commercial fertilizers have in the past been able to obtain, and to determine whether in a broad way the application of electricity and industrial chemistry may accomplish for the agricultural industry of the country what they have economically accomplished for the other industries, and if so found and determined to reasonably employ such improved methods."

Those are important things.

Mr. Wurzbach makes a very pertinent suggestion about this board and its powers. The powers of this board as provided here are very broad. They might say, I think, under the power they are given here, that you shall leave out these fillers; they might say under that same power that there is no demand for certain kinds of fertilizer here. Their powers are very broad.

Mr. GREENE. Suppose Mr. Ford's corporation disputed their right to say that.

Mr. WRIGHT. There is not anything that ultimately could not get into court—taken into court by people who want to put it there.

Mr. GREENE. Why can not we say specifically that board shall have the right to regulate now?

Mr. WRIGHT. I think they have ample power granted them here.

Mr. WORTHINGTON. May I make a short statement at this point, Mr. Chairman in reference to one matter that has been discussed? In the revision of this section 15 we did not consult any of the farmers or any representative of the farmers. When this was brought back we sent for a gentleman who is connected with one organization here. I believe he is the best-informed layman in this country. I sent for him and I submitted the draft of the committee to him, and this draft, and I said to him: "Criticize that. Do not look with favor on either draft in doing it, but you will look at his testimony before the comas you know them to be." If you will look at his testimony before the committee you will find that he gives details about much that Mr. Wright has said. After he had studied this thing, he said that undoubtedly, considering the farmers' need at present and in the future, we had covered it. He said, "Under the draft as prepared you could not ship phosphoric acid to Illinois, and that is the only thing that many farmers in Illinois want."

Mr. QUIN. Will you give us the name of the man you refer to?

Mr. WORTHINGTON. I refer to Mr. Bower. Mr. Bower is a student of that proposition and I think his testimony before the committee bears me out in what I have said. I asked him to consider this in an unbiased way and tell what he thought about it.

Mr. MAYO. I would like to make this suggestion in connection with this matter. We attempted to avoid running against a situation where we would be thrown up in no time. If that board can not control the thing, I do not know what I am talking about.

Mr. MILLER. I have listened very attentively to this very interesting discussion. What I am after is to have the thing arranged so there will be a supply of fertilizer to the people who use it. That is my only interest in this matter; otherwise I will divorse myself from the whole thing. I have tried to contribute what I can to that angle of the situation. What I am after is to bind Mr. Ford to make fertilizer during the life of his lease.

I want to call attention to page 13 of the draft of the proposed legislation. We start there with the premise that "inasmuch as the manufacture of commercial fertilizer for our farms and the sale and the distribution of the same to the farmers and other users thereof constitute one of the principal considerations of this offer moving to the Government of the United States and its people, the company expressly agrees that it will continuously throughout the lease period of 100 years, except when prevented by war, accidents, fires, unavoidable strikes, or acts of Providence, manufacture annually at plant No. 2, or such other plant or plants adjacent or near thereto as it may construct, 40,000 tons of fixed nitrogen, and will manufacture the same into complete fertilizer and fertilizer materials, and for that purpose it will manufacture or otherwise procure the remaining necessary additional fertilizer ingredients proportional to the said 40,000 tons of fixed nitrogen and mix and blend such fertilizer ingredients, with or without binder or filler, in such proportion as to make properly balanced commercial fertilizer." If a man wants nothing but phosphoric acid, phosphoric acid to him is a balanced fertilizer, and the same thing is true in connection with potash. If he wants nothing but potash, potash to that man is a balanced fertilizer; if a man wants nothing but nitrogen, nitrogen is a balanced fertilizer. There is nothing on God's earth, as I see it, in this contract, to prohibit a man from getting a balanced fertilizer, if he wants a balanced fertilizer, or he can get one of the elements, what might otherwise be a balanced fertilizer. He is entitled to a balanced fertilizer for his use, which the company has the right to make and sell. If that needs to be amplified, something like this might be added: "Nothing in this paragraph shall prevent the supply of the market demanded for any particular fertilizer or fertilizer ingredient."

I was somewhat surprised to hear Mr. Mayo say that this whole thing could be written on one side of a sheet.

Mr. WRIGHT. He said Mr. Ford said that could be done.

Mr. MILLER. You can not do it. Every lawyer of any experience bewares of language that does not mean anything. The difficulty that we had with Mr. Ford's first offer, his original offer made in July, 1921, was that it was not specific enough. The next offer was not specific enough on the fertilizer angle.

We talk about this board. If you will turn to page 18 you will see what the authority of the board is. There is nothing there about the kind of fertilizer. It says, "The said board shall determine what has been the cost of the manufacture and sale of fertilizer products and the price which has been charged therefor."

This board has nothing to do except zoning and the examination of the books for the purpose of ascertaining the cost for the fertilizer; whether it be blended. It says, "The said board shall determine what has been the cost of manufacture and sale of fertilizer products, and the price which has been charged therefor, and if necessary for the purpose of limiting the annual profit to 8 per cent, as aforesaid, shall regulate the price at which the said fertilizer may be sold by the company." The board has the pricing of this product and the zoning of it, but no control over the method of manufacture of it, or the quantities of the respective ingredients that shall be manufactured. It is a price stating and zoning board with no other powers in the world, and we have expended most of our ingenuity here, and gentlemen who have contributed to this proposition here, have expended most of their ingenuity in providing how this board shall be created and how it shall be perpetuated in the case of an infinite number of emergencies.

I dare say Mr. Ford would look aghast at a proposition by which any board would have the power to indicate to him how he should manufacture fertilizer.

Mr. MAYO. Certainly.

Mr. MILLER. Probably no notion would be so shocking as to undertake to put a provision in this contract providing that Mr. Ford should be limited by this board as to his manufacture, authorizing what he shall manufacture. I am

particular about this because I am not satisfied with the language in the original Ford offer, nor the language as presented now regarding the fertilizer business. If there is going to be anything that will release Mr. Ford from providing a continuous outflow of fertilizer in such kinds and quantities as the board demands I will withdraw my interest right now.

Mr. GREENE. May I suggest on that proposition that the original language on the bottom of page 13 seems to exclude the manufacture of a single element. It seems to me that if you want to provide for that it will be necessary to add something as you suggest.

Mr. MILLER. The question arose that during the lifetime of the lease it may be demonstrated as far more profitable for Mr. Ford or his company to turn the plant into the manufacture of specialized articles and sell them, which articles are entirely divorced from the production of fertilizer.

There might be a demand for the manufacture of nitric acid, and a market demand for that might be far above the demand that it be converted into fertilizer. We were trying to bind him so that there would be a reasonable certainty of the outflow of fertilizer.

Mr. GREENE. But you could not balance anything unless you compare it with something else. You use the language "and mix and blend" which means that you prepare more than one element.

Mr. MILLER. Mix and blend how—in proportion?

Mr. GREENE. I only suggest that the very words you suggested yourself to be added to the language here would clear the whole thing.

Mr. MILLER. I have been very much attracted to the Ford offer all along, but my deepest concern is with the outflow of the fertilizer, and to see that the contract binds Mr. Ford and his company during the lifetime of the lease so that there will be no lessening of the flow of that substance.

Mr. WRIGHT. I am thoroughly in accord with Mr. Miller, but he expresses some doubts now in view of the suggestion made here that the language employed might not allow certain ingredients to be sold. That is the only point I made.

Mr. MILLER. Mr. Wright and I eliminated any mention of ammonium nitrate.

Mr. MAYO. What is the matter with our guaranty on capacity as we have it?

Mr. MILLER. Because you only agree to operate nitrate plant No. 2. Look at your offer and see if that is not so.

Mr. GARRETT. Mr. Mayo, I call your attention to line 8, page 14. What do you understand by the language "and other commercial fertilizers"?

Mr. MAYO. I presume that refers to phosphates and potash.

Mr. GARRETT. Do you understand by this language that Mr. Ford will be required to produce at plant No. 2 the other and component parts of fertilizer in order to make a finished fertilizer in the same proportion that 40,000 tons of fixed nitrogen bears to a finished product?

Mr. MAYO. Yes, sir; that was our construction of it.

Mr. PARKER. How can he make it in plant No. 2?

Mr. GARRETT. Do I understand you to say that your construction of this language is that when Mr. Ford shall make 40,000 tons of nitrogen, if the market demands require it, he also under this contract would be required to produce or acquire the other ingredients in order to make this finished product if the market demands it; that is, the phosphoric acid or the potash in that same proportion?

Mr. MAYO. Yes, sir.

Mr. GARRETT. I want to get your construction of that into the record.

Mr. MAYO. According to the way that is written I take it to mean that we have to produce the other ingredients to make what Mr. Miller thought was a balanced fertilizer, which includes all three ingredients—nitrogen, potash, and phosphoric acid—and according to the language on page 14 we must mix and blend them all.

Mr. GARRETT. What I am after is to get your construction of this language, and you say that your construction is that if Mr. Ford enters into this contract with the Government he will be bound to produce the component parts of the finished fertilizer at this plant No. 2 in the same proportion as the 40,000 tons of fixed nitrogen bears to a complete fertilizer?

Mr. MAYO. Yes, sir.

Mr. GARRETT. And it is up to him to go out and acquire the necessary amount of phosphate or potash; that is a matter which does not concern the Government, but it concerns him, and he has to do that.

Mr. MAYO. Yes, sir.

Mr. GARRETT. And you further understand, as I gather, that the contract means that after he has acquired all of these other ingredients he may then sell the fertilizer in the mixed form or in the unmixed forms?

Mr. MAYO. According to our understanding of our language we can sell it mixed or unmixed.

Mr. GARRETT. But according to your understanding you are in no wise relieved from getting the other ingredients and having them there ready for the market demands?

Mr. MAYO. Not at all. That is why I was questioning Mr. Miller to find out why he thought that in our language we have not agreed to operate that plant at its full capacity. We keep in the provision for the 110,000 tons of ammonium nitrate, and we also amplify that by saying "40,000 tons of fixed nitrogen," which is the same thing. That was what the plant was built for, and it is what we have been trying to adhere to in reference to its capacity.

Mr. MILLER. It occurs to me that the language employed here is subject to the same criticism as that in this offer. This is the way it reads on page 13 of the committee print, commencing on line 16, "the company expressly agrees that it will continuously throughout the lease period"—then passing to page 14, line 4—"operate nitrate plant No. 2, using the most economical source of power"—right there I may ask what significance the use of the word "source" has?

Mr. MAYO. You know why that was inserted?

Mr. MILLER. I should think it would read "using the most economical power."

Mr. MAYO. That was put in at Senator Norris's request. He said, "You might operate that plant and run your own business on secondary power, and run the nitrate business on primary power." I said we will make it from the most economical source, and he said that was all right.

Mr. MILLER. I was scrutinizing the word "source." I was wondering why the word "source" was injected into this language.

Mr. MAYO. That was the reason.

Mr. GREENE. As a matter of fact, the word "power" is the correct word, because you do not use the source, but the power that comes out of it.

Mr. MAYO. It all comes from one source.

Mr. MILLER. The language continues, beginning at line 5, on page 14, "at the approximate present annual capacity of its machinery and equipment in the production of nitrogen and other commercial fertilizer, mixed or unmixed, according to market demands."

So far as that paragraph is concerned, I should interpret it to mean that they can only compel you to manufacture such things as nitrate plant No. 2 will produce.

Mr. MAYO. No.

Mr. MILLER. And anything nitrate plant No. 2 will not produce will not be covered in your contract. I have said, in my phrasing of it here, "at nitrate plant No. 2 or at such other plant or plants adjacent or near thereto as it may construct." If plant No. 2 will not make what we are after, it will not be made. Your language is "operate nitrate plant No. 2, using the most economical source of power at the approximate present annual capacity of its machinery in the production of nitrogen and other commercial fertilizer"——

Mr. MAYO (interposing). "And other commercial fertilizer"—what does that mean?

Mr. MILLER. I do not know what it means, I am frank to say. It seems to me that if you can not make it at plant No. 2 we can not compel you to make it.

(Thereupon the committee adjourned to meet Saturday, June 3, 1922.)

COMMITTEE ON MILITARY AFFAIRS,
HOUSE OF REPRESENTATIVES,
Saturday, June 3, 1922.

The committee met at 10.30 o'clock a. m., Hon. John C. McKenzie (acting chairman) presiding.

STATEMENTS OF MR. WILLIAM B. MAYO, CHIEF ENGINEER FORD MOTOR CO., DETROIT, MICH., AND MR. J. W. WORTHINGTON, WASHINGTON, D. C.—Resumed.

Mr. MCKENZIE. We will have incorporated in the record the amendment under discussion.

(The matter referred to is as follows:)

"Since the manufacture, sale, and distribution of commercial fertilizers to farmers and other users thereof constitutes one of the principal considerations

of this offer, the company expressly agrees that, continuously throughout the lease period, except as it may be prevented by reconstruction of the plant itself or by war, strikes, accidents, fires, or other causes beyond its control, it will manufacture nitrogen and other commercial fertilizers, mixed or unmixed, and with or without filler, according to demand, at nitrate plant numbered 2, or its equivalent, or at such other plant or plants adjacent or near thereto as it may construct, using the most economical source of power available. The annual production of these fertilizers shall have a nitrogen content of at least forty thousand tons of fixed nitrogen, which is the present annual capacity of nitrate plant numbered 2. If during the lease period said nitrate plant numbered 2 is destroyed or damaged from any cause, the company agrees to restore said plant, within a reasonable time, to its former capacity, and further agrees."

Mr. MILLER. In the second line of the amendment, after the word "fertilizers," there have been added the words "to farmers and other users thereof," so as to make it conform to the other provision.

Mr. MAYO. That is all right.

Mr. CROWTHER. When do you contemplate that the production of fertilizer will commence? The language is that it will proceed throughout the lease period, or continuously throughout the lease period. That is the language, is it not?

Mr. MAYO. Yes.

Mr. CROWTHER. Now, it is contemplated under the lease that fertilizer is to be made when the property goes to sale, the Government selling and you buying?

Mr. MAYO. Yes, sir.

Mr. CROWTHER. You get possession upon signing the contract and upon the payment of $1,000,000, and you are allowed five years in which to make the payment of the $5,000,000?

Mr. MAYO. Yes, sir.

Mr. CROWTHER. The commencing of lease period has to do with dams?

Mr. MAYO. Yes, sir.

Mr. CROWTHER. The lease period does not commence until the finishing of Dam No. 2, when 100,000 horsepower will be ready for action.

Mr. MAYO. Yes, sir.

Mr. CROWTHER. What will happen at this plant between the time of your possession and the time that the lease period commences, which will be a period of four years?

Mr. MAYO. As to both dams?

Mr. CROWTHER. You can not finish Dam No. 2 in much less than three years, can you?

Mr. MAYO. We figure on finishing it inside of two years. It will probably take a year to get the nitrate plant ready for operation.

Mr. CROWTHER. It struck me that probably one of the reasons why they were so anxious for the Gorgas plant was in order to have that plant for that period of about four years, with the transmission lines right straight through, using it for something else during the period of four years instead of manufacturing fertilizer, because they do not have to manufacture fertilizer until the lease period commences.

Mr. MAYO. Whatever we do, we must build a plant to do it with.

Mr. CROWTHER. The possession of the nitrate plant is given over upon the signing of the contract and the payment of $1,000,000, but the lease period begins at an entirely different time. It does not commence until the finishing of Dam No. 2, with 100,000 horsepower ready for action. There will be a period of from three and one-half to five years in between there, during which the lease period will not have commenced. It seems to me that we have the language as to the lease period mixed in there. It is provided that you shall get direct possession upon the payment of $1,000,000 and the signing of the contract, but you do not have to use it for the purpose of manufacturing fertilizer until the lease period has commenced. If I am wrong about that, I want to be corrected.

Mr. MILLER. They do not expect to make fertilizer until the commencement of the lease period, or until the dam is completed. They do not expect to make it with the steam plant, but the production of fertilizer is to be coincident with the completion of the dam.

Mr. CROWTHER. In the meantime, if they get the Gorgas plant, they would have a cheap source of power.

Mr. MAYO. Mr. Crowther, we will use the Gorgas power for all the construction work, and that is one of the principal reasons for wanting it.

Mr. CROWTHER. With its cranes, conveyors, etc.

Mr. MAYO. Mr. Ford has stated to me a number of times that as soon as he got the nitrate plant, he would start right up with the steam power. The question, to my mind, is whether we can get away with it. I do not know that we can, but that is the condition.

Mr. CROWTHER. I wanted to call attention to that.

Mr. MAYO. Your point is well taken.

Mr. PARKER. I want to ask one question: You have changed the language "acts of Providence" to "causes beyond its control."

Mr. MAYO. Yes, sir.

Mr. PARKER. The language "acts of Providence" would not cover "causes beyond its control." Would not the language "causes beyond its control" cover inability to sell the product?

Mr. MAYO. No, sir; I do not think so.

Mr. PARKER. You do not think it would cover it?

Mr. MAYO. I do not think so.

Mr. PARKER. Then, why not stick to the language "acts of Providence," because that is perfectly plain.

Mr. MAYO. I think the language "causes beyond its control" is a better way around it.

Mr. PARKER. The trouble is that it is so broad that it covers a great many things. In my judgment, it would cover falling prices or a situation where you would not have a profitable market.

Mr. MAYO. I would dislike to change that because I went to Mr. Ford with that as an entering wedge when I took up with him our mistake in leaving out reference to strikes and fires. I got him to agree to it.

Mr. PARKER. But he had already seen the phraseology of the committee provision, and if you had only restored the phraseology of the committee, as we had it, with "acts of Providence" with which we were satisfied——

Mr. MAYO (interposing). He saw that in your written statement.

Mr. PARKER. He had seen that?

Mr. MAYO. Yes, sir.

Mr. PARKER. We wrote it just as he had it before him, and he had agreed to it.

Mr. GARRETT. As a matter of judicial construction, the words "acts of Providence" or "causes beyond control" are read into contracts whether they are actually inserted in the contracts or not.

Mr. PARKER. I am not talking about that. I am talking about the phraseology which has been changed from "acts of providence" to "causes beyond its control." I think that language is too broad.

Mr. GARRETT. Is not that language "causes beyond its control" stronger than the term "acts of providence"?

Mr. PARKER. Yes; and it gives him exemption if the market falls.

Mr. GREEN. Mr. Mayo, have you taken into consideration the language carried in the old bills of lading? That language has been given judicial interpretation.

Mr. MAYO. Yes, sir; we carry that in all of our contracts.

Mr. GREEN. It varies from this language somewhat.

Mr. MAYO. It was started by cribbing it out of our letterhead originally.

Mr. GREEN. I remember the phrase in the bills of lading, and there was never any misunderstanding about that.

Mr. PARKER. Bills of lading do not use this phrase. These are your own words.

Mr. MAYO. In principle, that is what is usually carried in all of our contracts.

Mr. HULL. Now, I quite agree with the idea that you have got to have very broad powers in this contract with regard to the manufacture of fertilizer, provided the market would not take it, and also if some causes should arise that we can not foresee that would prevent it. I understand that you contend that you have in here a provision under which this board would have to approve any cessation of manufacture of fertilizer, and that matter would really be up to the board. Yesterday, in talking with Mr. Mayo, he stated that the board would pass on the matter of the cessation of the manufacure of fertilizer, and if there were no market demand, would we not have the intervention of that feature of the contract? We have a board here, or a board has been created for this particular purpose.

Mr. MAYO. Yes, sir.

Mr. HULL. For the purpose of fixing prices, etc. If that were done, I can not see any objection to it. In other words, you could simply put in a clause providing that this board is to approve of any cessation of the manufacture of fertilizer.

Mr. MAYO. I can not go back for any more concessions.

Mr. HULL. I am only calling your attention to this feature. You have the words "according to demand" and you struck out the word "market." I may be wrong, but I have had something to do with markets, and if you put that provision in the contract, that you are to manufacture or are not to manufacture, according to what the market demand is, the other party would have no contract at all.

Mr. MAYO. There is nothing in this about markets.

Mr. HULL. You struck out the word "market," and have the language, "according to demand". Of course that demand centers in the market. We have had men before this committee who are exports, and they ought to know what they are talking about, but I presume they do not, and they have told us that there was no demand at all for this product, and that nobody could sell the fertilizer at the price and make any percentage of profit at all. In other words, under that clause they would not manufacture a bit of fertilizer. Now, we are all going to die long before this contract is out, but those experts will be alive and going on just the same as they are to-day, and as they have been doing for the last 500 years. We will always have the expert who can go before the courts and testify in regard to anything they want.

Mr. MAYO. Then, it does not matter how you write it, does it?

Mr. HULL. Yes; that it the point I make. You have this board that is to be created, and you should not have any trouble in getting along with them. If you had a provision under which they should interpret the necessity, or that required that they should approve the cessation of the manufacture of fertilizer at any time, it seems to me it would be satisfactory. Now, it has been suggested that you could come to Congress, but I do not think that should be done. I think that power should be placed with this board, which is to be a neutral board.

Mr. MCKENZIE. I am satisfied in my own mind that, with this board created by this bill, so far as the manufacture of fertilizer is concerned, they will be the experts on one side of the matter, and another set of experts might spring up on the other side. It seems to me that so far as the manufacture of fertilizer is concerned, the Government and the people will be pretty well protected. Of course, if it should turn out that you could not manufacture it at a price at which it could be sold on the market, or if other manufacturers of fertilizers have to reduce their price to a point at which it would be a loss to manufacture fertilizer at Muscle Shoals, the result would be attained.

Mr. GREENE. I do not think there is much use in wasting time on that.

Mr. WRIGHT. The phraseology of this paragraph, as it is submitted here by Mr. Miller, can not be construed to relieve Mr. Ford from the manufacture of fertilizer because there is no demand for it. I think it means that he must manufacture it mixed or unmixed, and with or without filler, according to the demand.

Mr. MORIN. Is this provision in reference to the manufacture of 110,000 tons of ammonium nitrate satisfactory? That provision has been in all of the previous amendments written, and it is eliminated here.

Mr. MAYO. It is all right to leave it out. The 110,000 tons of ammonium nitrate and 40,000 of fixed nitrogen could be carried together.

Mr. MILLER. It would be your idea to write that in after the word "nitrogen"?

Mr. MAYO. You could say 40,000 tons of fixed nitrogen, or the equivalent of 110,000 tons of ammonium nitrate, or the equivalent of the fixed-nitrogen content of 110,000 of ammonium nitrate.

Mr. WRIGHT. One hundred and ten thousand tons of ammonium nitrate contains 40,000 tons of fixed nitrogen?

Mr. MAYO. One hundred and ten thousand tons of ammonium nitrate has 40,000 tons of fixed nitrogen in it.

Mr. GREENE. This is another case where we are defining a definition. We provide for 40,000 tons of fixed nitrogen.

Mr. MAYO. I think it is all right as it is.

Mr. WRIGHT. The experts, whatever their opinions may be worth, tell us that fixed nitrogen is a better basis to use than ammonium nitrate.

Mr. MCKENZIE. Now, gentlemen, are there any other points in controversy except the matter of the Gorgas plant that you want to mention?

Mr. MAYO. I do not think so.

Mr. MCKENZIE. If you have anything to say on that, we will be glad to hear you.

Mr. MAYO. Knowing that would come up, I thought I would reiterate some of the reasons why we want the Gorgas plant. The following are our reasons for including the 40,000-horsepower steam plant in the Ford proposal:

1. This plant, or one of equal size, is a necessary part of any practical working plan for operating the Muscle Shoals project, and was recognized as such from the very beginning. This is shown by article 23 of the Alabama Power Co. contract, which provides for the cancellation of certain purchase arrangements between the Alabama Power Co. and the Government if a successor to the United States undertakes to operate the nitrate plant.

2. This plant has furnished the power that is absolutely necessary during the building of the dams. The only other steam plant of sufficient size is the 80,000-horsepower plant at nitrate plant No. 2, which can not be economically started until the nitrate plant is in operation and there is a large demand for power.

3. When the two dams are completed the capacity of the necessary steam auxiliaries should be at least 250,000 horsepower. This must be available in at least four or five units, so that we can throw in the smallest units first and follow with the larger units as the flow of the river decreases until the entire steam power is in operation. When the flow increases there will be a similar need for flexibility in the supply of steam power for practical operation.

4. For the foregoing reasons if Gorgas is excluded it will necessitate the construction of an additional 40,000-horsepower plant.

5. The location of the Gorgas plant at the mouth of a coal mine is ideal from the standpoint of economy, and will make power so cheaply that it can be used as required in economical fertilizer production. It is evident that those who designed the project intended that this economical power should be available for the operation of the Muscle Shoals enterprises.

As I have said, if the Gorgas plant is excluded it will necessitate the construction of an additional 40,000-horsepower steam plant and it will also slow up the construction.

Mr. CROWTHER. How about the small plant at No. 1?

Mr. MAYO. That is only a 5,000-horsepower plant, using direct current.

Mr. WORTHINGTON. It has no condenser.

Mr. KEARNS. In the event you should get the Government's interest in the Gorgas plant, could you operate it in conjunction with the Alabama Power Company, or could both of you operate the plant there?

Mr. MAYO. We anticipate no trouble about that at all. The chances are that we would make an arrangement with them to operate it for us.

Mr. KEARNS. Your idea then is for both of you to retain your ownership, or you would retain ownership of the Government's part of the plant, while the Alabama Power Company would still retain its part of the plant?

Mr. MAYO. Yes, sir.

Mr. KEARNS. If you could not make an arrangement with the Alabama Power Company, both of you could not operate that plant together, could you?

Mr. MAYO. We could.

Mr. KEARNS. Do you mean that you would have two sets of employees there?

Mr. MAYO. Yes. Did you visit the plant?

Mr. KEARNS. Yes, I did.

Mr. MAYO. Then you probably noticed that the Government's boiler plant is entirely seperate from the other, the only physical connection between them being steam mains, which could be cut apart.

Mr. KEARNS. How would you get water? Would you get water from the same intake?

Mr. MAYO. We would take our water through their intake. They surely would not refuse to permit that, but if they did we could run in a separate one. I know that we could make the arrangement.

Mr. CROWTHER. You would be dependent upon them for a coal supply at the plant?

Mr. MAYO. We would want to be, but not necessarily. We would want to take coal from them, and would want to make an arrangement with them to operate the plant.

Mr. KEARNS. Suppose they should refuse?

Mr. MAYO. We do not think that is possible. They claim that they need some of the power themselves, and any we did not use they could use themselves and pay us for it.

Mr. MCKENZIE. I think I fully appreciate the position that you take in the matter, so far as this power being immediately available to permit you to go on with the construction work at Muscle Shoals is concerned. I can see that, but I have always viewed this Gorgas plant as a separate proposition from Muscle Shoals. The fact is that the oGvernment has an investment there of $5,000,000 which has a salvage value. We have considered it to worth probably 50 cents on the dollar, but since considering this matter, and after the refusal of Mr. Martin to make any sort of offer, he has recently come through with an offer to the Secretary of War, saying that he would pay $2,500,000 for this plant, or for the Government's interest in the plant.

Mr. MAYO. Yes, sir.

Mr. MCKENZIE. Now, of course, that $2,500,000 is money that is available for the Government. We are offering to sell the Muscle Shoals property without the Gorgas plant to Mr. Ford for $5,000,000, or Mr. Ford offers $5,000,000 for the uscle Shoals property, including the Gorgas plant. Now, as a plain simple business proposition, if the Gorgas plant is included, it means that we are turning over to Mr. Ford property which represents a value of $2,500,000. Has it ever occurred to you that it might be a good alternative proposition for Mr. Ford, if he intends to have the Gorgas plant, to come through and agree to make the Government whole on that proposition by increasing his offer to $7,500,000, in lieu of the original offer of $5,000,000?

Mr. MAYO. All of those things have occurred to us, but we have never looked at this from the price point of view at all.

Mr. MCKENZIE. I see the force of your position all the time, but is that a good business proposition for the Government? It strikes me that you would be getting $2,500,000 with which you could dicker and make arrangements with the Alabama Power Co. for your own convenience. Now, I agree that Mr. Ford intends to carry out this contract, and I think he is acting in good faith absolutely, but I am simply sitting here as a representative of the people and as a member of this committee, and I have to ask my own questions. I ask you, is it good policy to turn this matter over in tha way, and I was wondering whether you might not come with an alternative proposition.

Mr. GREENE. May I ask something before he answers?

Mr. MCKENZIE. Certainly.

Mr. GREENE. In this instance, the offer of the Alabama Power Co. for our share in the Gorgas plant represents $1,000,000 cold cash down, and in the case of the $5,000,000 that Mr. Ford offers for all of the property, including the Gorgas plant, we pay interest charges on the money that we will have to invest for Mr. Ford in the Muscle Shoals plant for seven years before he begins to make any returns at all. Mighty little of the $5,000,000 will be left in our pockets when Mr. Ford begins to make returns, and the profits will all be gone. Now, if both of us were independent of our connections and were sitting at this table in our private capacity dealing with our own property, would not the proposition as stated by Mr. McKenzie seem quite different?

Mr. MAYO. If you look at this thing from the dollars and cents point of view, it is an entirely different matter, but we do not look at it from that point of view at all. I contend that the Government could afford to give it to Mr. Ford if he carried out his intentions. If he carried out his intentions, it would be a good thing from the standpoint of the Government if you gave it to him. If you put it upon the basis of dollars and cents, it is a horse of another color.

Mr. GREENE. You would not sit here as a citizen and advocate the Government endowing private interests in the matter of manufacturing plants?

Mr. MAYO. No, sir.

Mr. GREENE. That is what would occur if you gave anybody anything.

Mr. MAYO. We do not think you are giving it. We will be bringing a war emergency measure right up to 100 per cent of everything it can do.

Mr. GREENE. We could do that, too.

Mr. MAYO. You could by spending the money.

Mr. GREENE. It would not be quite the proper consideration for turning over all of this property.

Mr. MAYO. We have always so viewed it.

Mr. GREENE. Oh, naturally.

Mr. MAYO. Not naturally, but with good business judgment as to what we have got to undertake to do down there.

Mr. GREENE. Put it this way: You want us to capitalize Mr. Ford's good intentions and call that a Government asset in lieu of money?

Mr. MAYO. Yes, sir; you will have to do that to some extent.

Mr. GREENE. Do you believe that we were sent here and put under oath to do that sort of thing by citizens?

Mr. MAYO. I think you were sent here to do what, in your judgment is best for the Government of the United States.

Mr. GREENE. But where would we end if we began capitalizing the good intentions of citizens and placing good property at their disposal, turning over to the Treasury account their good intentions as so much cash?

Mr. MAYO. If you put it on a strictly dollars and cents basis, you might scrap the whole thing for $7,000,000 or $8,000,000.

Mr. GREENE. We are confronted with similar propositions from time to time, and the theory and principle would remain the same, if we once invoked such a principle. Sometime ago we very carefully and deliberately eliminated from our official agencies and interests all that were sustained by private capital, as, for instance, the Rockefeller Foundation, because the Government could not afford as a matter of principle to be in partnership with private interests. If we once began, even with the most salutary proposition and with the utmost good intentions, the Lord only knows where cheap politics might sometimes land us.

Mr. MAYO. That is very true. All that I can say is that Mr. Ford has made the best bid that he can afford to make. That is all we have to offer, and that is where we stand.

Mr. HULL. So far, I quite agree with the idea of turning over the Muscle Shoals plant to Henry Ford. I think I can defend that position, if necessary, before my people, and I know I can before myself, which is far more important than anything else; but when you come to the Gorgas plant, that is coming to another proposition. I think we all fairly well understand the proposition.

There is, as Mr. McKenzie says, the financial side of it which is, of course, something, and which, to my notion, as well as to his, is very questionable, the turning over of property for which we have a straight bid of $2,500,000, and to put it in with a lot of other property and say, "We will give it to you for $5,000,000." But we have there, of course, the compelling interest that we are preserving the nitrates for national defense, but with the Gorgas plant we do not have that. The Gorgas plant is not absolutely essential to the production of nitrates at plant No. 2, and if it is, Henry Ford can have another Gorgas plant; there is nothing to prevent him at all. And I want to ask you this question: Has this Government ever, where it went in as it did at the Gorgas plant—and it did it all over this country during the war—assigned that contract to somebody else to settle up?

Mr. MAYO. I do not know, I am sure.

Mr. HULL. You surely would know if there was an instance.

Mr. MAYO. I do not know that I would.

Mr. HULL. So far as I know there is no instance of that being done. It was evidently presumed in this deal that the Government would not do it. If we establish that precedent, that we are going to take and commandeer private property and then after we are through using it turn it over to somebody to settle up, we establish a very, very far-reaching proposition.

Mr. MILLER. Do you maintain that we commandeered anything of the Alabama Power Co.?

Mr. HULL. We practically did; we went in, and we have, as I understand it, no real estate down there, have we?

Mr. MAYO. Not to my knowelge.

Mr. HULL. We have not a foot of real estate that can be quitclaimed. You talk about quitclaiming. We can not quitclaim any rights there, because

we have no real estate. I am not a lawyer, but as I understand it, quitclaiming means real estate and real estate is not brick on top of land; it is land.

Mr. MILLER. Is anybody asking you to quitclaim anything?

Mr. HULL. That is what they are talking about.

Mr. MILLER. No; assigning the contract. The Alabama Power Co. invited the Government to come down there and the Government went down there.

Mr. QUIN. And in addition to that, the highest tribunal in the law department of the Government said, "You have a right to take this," so what is the use of arguing it? It will not change a vote, so let's vote. I am ready to vote.

Mr. FISHER. I would like to know whether or not the Chief of Engineers of the United States Army or the Secretary of War, when they first took this matter up with Mr. Ford and urged him to bid on this proposition, told him or gave him any information to the effect that the Government would not be in a position to transfer the Gorgas plant to Mr. Ford if he should so desire it?

Mr. MAYO. They did not.

Mr. HULL. Did they say they would be in a position to transfer it?

Mr. MAYO. No.

Mr. JAMES. I would like to ask Mr. Worthington whether, when he talked with General Beach, the general gave him to understand that he wanted to sell the whole thing or whether he wanted to sell without the Gorgas plant?

Mr. WORTHINGTON. He said he hoped we would bid on the whole proposition.

Mr. JAMES. That is what he tried to sell through you?

Mr. WORTHINGTON. Yes; he told me to tell Mr. Ford so.

Mr. JAMES. Mr. Mayo, I understand you to say you can enter into an arrangement with the Alabama Power Co. by which they will operate the plant and give you a part of the power?

Mr. MAYO. Yes.

Mr. JAMES. Is there anything to make it a physical impossibility for you to go to work, by spending some money, and operate your share for your own use?

Mr. MAYO. The agreement they made with the Government gives us the right to buy all the power if we want to. The contract, as it is now written, provides for it.

Mr. JAMES. If they should absolutely refuse to do that, do you feel you could work out a plan by which you could operate it yourselves?

Mr. MAYO. We certainly do.

Mr. KEARNS. You have no contract with the Alabama Power Co., save what you would get by a transfer of the Government's interest there? You have no private contract?

Mr. WORTHINGTON. No. The Government, by its contract with the Alabama Power Co., retains the right for any purchaser of either of these plants to get the capacity of that plant.

Mr. MAYO. Of course, another angle of this is that seven months had practically elapsed from the time we first made our bid; then they came across with an offer, and that included the two plants, and then right at the eleventh hour they came across with another offer to include only one. They are fighting their own interest and clearly trying to block ours. Now, when the thing is all over, we can deal with them and anything to their interest, after this deal is made, they will do. That goes without saying.

Mr. HULL. I have no doubt you can deal with them, but I do think this: That we ought to let them have what is theirs to deal with Henry Ford, and, if he wants to buy it, go and buy it of them.

Mr. MAYO. It is not theirs, Mr. Hull.

Mr. HULL. It certainly is; it is on real estate owned by them.

Mr. MAYO. But we do not get any real estate. We only get the interest of the Government. We stand in exactly the same position you do to-day, and we can ask anything of them under the contract that you can ask of them to-day if you are going ahead and operate the plants on your own hook.

Mr. HULL. I have asked you once before, but I will ask it again: What would you think if the Government had gone into the Ford plant, made some extensive improvements there, and then, after the war, sold them to the Dodge people, for instance, and said, "You settle with Ford"? Would that have been a square deal?

Mr. MAYO. The Government built a cantonment on our property and they pressed us to make a bid on it, but Mr. Ford absolutely refused to do so because it was worth so little to him that he felt he would be put in a rather bad light to make a low bid for it. So he insisted that they settle it on the outside; and the cantonment property was sold and taken away.

Mr. HULL. That was very fine; and it would be a very different proposition if the Alabama Power Co. should say to us. "You sell this; we do not want it." That would be a different proposition.

Mr. GREENE. And, by the way, the situation is not parallel, because this was portable property.

Mr. MAYO. It is not a parallel situation, because, as you say, it was portable property and could be taken away.

Mr. MCKENZIE. If that is all, gentlemen, we are much obliged to you.

Mr. WORTHINGTON. May I say just one word? I do not want to vex you or delay you, but I have been in the Muscle Shoals game just 22 years, and I am about to go out of it. I will tell you why. Yesterday the Senate voted, without debate, $7,500,000 to carry on the work at Dam No. 2. It is going to be built. Now, I just want to leave 22 years' thought with you. It is not $2,500,000 for Gorgas you are voting on. When this committee votes on this proposition and does not give this Muscle Shoals plant to Henry Ford, it is going to vote for Government operation. Of course, I know you will say, "No; we are not. We will never do it." I want to leave some papers with you. You may never look at them, but just remember how these farmers after months and months of study made a report and urged Government operation; how the Mississippi Valley Association sent a committee there with engineers and urged you to do the same thing. I may be treading where angels ought not to tread, but I venture that it will turn out about this way: The Senate will pass a Government operation bill for nitrate plant No. 2 next Congress, and it will come over to the House. Of course, you say you will not do it, but when the facts are all brought out and the pressure is upon you I predict—I make the legislative prediction that you will.

Now, just one point with regard to Gorgas, and to show you how utterly insignificant it is and how it ought not to be counted at all. What are you paying in this country for nitrogen? What are you paying a foreign country? You talk about the taxation of your own people and the loss you are going to sustain in your Treasury of $2,500,000, but you are paying from $2,500,000 to $3,000,000 to support the Chilean Government every year. Now, there is no doubt about that. Here is the record of your own departments. You are paying that every year. If Mr. Ford is given nitrate plant No. 2, and he complies with his contract, he is to make half as much nitrogen as you are importing from Chile to-day. There is no better trade that this country can make that I know of than to give $2,500,000 to stop paying the same amount to a foreign government.

Mr. WURZBACH. Is that by way of export?

Mr. WORTHINGTON. Yes; and it is a solemn business question.

Mr. KEARNS. It is necessary for me to leave, and I would like to ask this question: As I understand, the only difference between Mr. Ford and this committee is a question of $2,500,000; is that the case?

Mr. HULL. Oh, no.

Mr. KEARNS. Well, that is as I understand it.

Mr. HULL. Financially that is true; but if you look at something else it is not.

Mr. WORTHINGTON. If I may, I would like to have just five minutes more. Now, you take this ammonium sulphate——

Mr. GREENE (interposing). You are making comparisons which we were told were not true. You were comparing what the Government may do with $2,500,000, either taking it or declining it, but you seem to overlook the fact that it is to be entered on the books of private citizens and not on the books of the Government; and it seems to me it is not proper for the Government to do private business for individuals.

Mr. WORTHINGTON. I am not speaking for the purpose of convincing any Member; I just want to make the statement. I do not believe I could convince Congressman Greene on that point. He and I have had most friendly talks about it, and I do not believe I could convince him, therefore I am going to yield to him. But I do want to call your attention to another thing: You take the ammonium sulphate production in this country. Mr. Ford produces ammo-

nium sulphate. His letter was criticized—maybe justly, I do not know—but he is a producer of ammonium sulphate, and he says his company refused to sign, with 20 others, a request that the Wilson Dam, as they put it, be not constructed for the operation of nitrate plant No. 2. Now, what did the House do? The House last year refused an appropriation. No criticism; just stating a fact. And the Ways and Means Committee, Mr. Chairman, gave the ammonium sulphate producers of this country $12 a ton protection. No criticism; just the record. Now, if you allow these home producers of ammonium $12 a ton you are going to allow the Chilean nitrate that, too, because that comes in here and competes with it. And what did they do? The same people, after getting $12 a ton from the House, went over to the Finance Committee of the Senate and justified it in this way: That they needed it to protect the ammonium sulphate production in the United States, a by-product, against war-built plants in Germany.

Now, remember they are willing for the dam not to be built to operate nitrate plant No. 2—that it remain idle, your war-built plant—and ask $12 a ton on the other hand against German plants. Now, that is a matter of record. And may I just say that not a word I am uttering is a cricism, and may I say right there in support of my statement that I remember a Member of Congress, a friend of mine elected to Congress, coming back after one term of service. I said, "Well, how did you like it?" "Well," he says, "I liked the job fine, if it wasn't for the damn Record." So I am just stating the record. Now, that is the case that is presented to this committee—that Mr. Ford proposes to make 40,000 tons of fixed nitrogen, which is equal to the nitrogen in one-half of the Chilean nitrate you are producing. The reason I bring it to your attention is this: That is the biggest job that any man ever proposed to undertake in the history of the industrial development of this country. I want to leave these, and maybe somebody will be interested in them; they are interesting; they go right to the meat of this case.

But just one more point. You are either going to have more government in business at Muscle Shoals or you are going to have less. I insist that is true, and I want to illustrate a case. Here is a memorandum from the Chief of Engineers to the Secretary of War that happened never to get into the record, in which they estimated that the cost of these dams, to complete Dam No. 2 and build Dam No. 3, would be $56,000,000. Now, just to illustrate a little business in government. The Secretary of War said to Mr. Mayo and myself, "I will never send that to the House; I could not justify it"; and, Mr. Chairman, we agreed with him. But we said it would not cost that much and we offered to give him our figures.

I will not consume your time to give you the details of them, but we showed that the cost would be from $40,000,000 to $42,000,000. He asked his engineers to look over our representations, and we went to the office of the Chief of Engineers, and with the chief and General Taylor, assistant chief, we went over the figures and our representations, and they said they agreed with them, some $12,00,000 or $14,000,000 less, and they said this: "If we had the freedom of action and could do as Mr. Ford could do in building the dam, we could do it, too." Now then, whether you accept the Ford offer or not, you are going to spend $7,500,000 by next summer, and I would like to ask whether there is anything in the record of these hearings that would convince any member of this committee as to when you are going to get 4 per cent on that money.

Just a little word personal to Mr. Mayo and myself. Mr. Ford thanked you on his part and myself, and I want to thank you for your courtesies. And then one other word. We can say in all truth that anything that ever leaked out from this committee did not come from us. The reason I mention that is this, that I am going to be guilty of one leak. Yesterday Mr. Miller said that he had given time and study to this proposition in order that the people of the South might have fertilizer. As a southern man I want to thank him for that and say to this committee that it is the best piece of evidence I have ever heard of that the Civil War is over, and I am going to let the people of the South know that he said it. I am just going to leave these papers with you, as they may interest you.

Mr. HULL. As I understand, whatever we decide, you want the bill reported to the House?

Mr. MAYO. If you please.

(Thereupon the committee proceeded to the consideration of executive business, after which it adjourned.)

APPENDIX.

MUSCLE SHOALS PROPOSITIONS.

AMENDMENTS TO ENGSTRUM OFFER.

COPY OF PROPOSED AMENDED CONTRACT FOR COMPLETION AND LEASE OF MUSCLE SHOALS BY FREDERICK E. ENGSTRUM—THE ENGSTRUM PROPOSAL TO LEASE MUSCLE SHOALS.

WAR DEPARTMENT,
Washington, February 24, 1922.

DEAR MR. SPEAKER: I inclose herewith an offer for the Muscle Shoals properties submitted by Frederick E. Engstrum which I think should be considered in connection with the investigations now being made by Congress.

JOHN W. WEEKS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

Amended Form of Proposed Contract for Completion and Lease of Muscle Shoals Project by Frederick E. Engstrum.

[Omit the words struck through and insert the words printed in italics.]

1. PARTIES.—Memoranda of contract made this —— day of ———, 1922, by and between the Government of the United States, party of the first part, and hereinafter referred to as the Government, and Frederick E. Engstrum, of the city of Washington, D. C., for and in behalf of a corporation to be formed by him to carry out the provisions of this contract and to be governed by a board of seven directors, one to be selected by the Secretary of War, one by the Secretary of Agriculture, and the remaining five by proponent, party of the second part, and hereinafter referred to as the lessee.

2. LEASE.—The lessee hereby leases all the property—real, personal, or mixed—now owned or hereafter acquired by the Government in connection with or forming part of, ~~or the possession, use, construction, maintenance, operation,~~ or extension of the Muscle Shoals project, or any part or appurtenance thereof, ~~including~~ *excluding* the steam plant, located at Gorgas, Ala., on the Warrior River, ~~together with,~~ *but including the* transmission lines *from said plant to Muscle Shoals for use at present location or elsewhere as will best serve the purposes of this lease.* Said property is included or intended to be included in the maps, deeds, descriptions, invoices, lists, and schedules furnished to the lessee by the Government and receipted for and such maps, deeds, descriptions, invoices, lists, and schedules, together with receipts for same, hereinafter referred to as the schedule, shall be a part of this agreement and shall bind both parties as truly as if they were written herein.

3. TERM.—This lease is to continue in full force for a period of 50 years from date the lessee acquires possession of the property. The lessee shall return said property at the termination of this lease to the Government in good operating condition, subject to damage beyond fault or control of the lessee.

4. PLANS AND SPECIFICATIONS.—It is mutually agreed by both the Government and the lessee that, for and in consideration of the lease, construction, operation, rights, privileges, payments, and other considerations hereinafter mentioned or otherwise provided for in this agreement, that the lessee will construct Dam No. 2, power station, *steam plant No. 2 to a capacity of 90,000 K. W. and steam plant No. 1 to a capacity of 10,000 K. W.* and such other structures now under construction or agreed to be constructed at Muscle Shoals, on the Tennessee River, in the State of Alabama, and hereinafter referred to as the "Property," as are set forth and described more particularly in the maps, plans, specifications, photographs, and other engineering data (hereinafter referred to as the plans), copies of which have been delivered to lessee and duly receipted for by lessee, and such plans thus receipted for are hereby made an essential part of this contract and are as binding on both parties as if they were fully set forth and written herein. When the Government shall require the construction of Dam No. 3, for which there are no complete engineering plans, the lessee agrees ~~and is~~ to build the same on plans and specifications to be prepared by the Government and on a location to be approved by the Government. ~~and the lessee will lease the same under the terms of this contract.~~ *Lessee also agrees to build, at dam No. 3, another nitrate plant, of the most improved process, by plans and specifications*

submitted to and approved by the Secretary of War and the Secretary of Agriculture, which plant shall have the same relative output capacity to the power to be generated at dam No. 3, as is the combined capacity of nitrate plants Nos. 1 and 2 to the power to be generated at dam No. 2; other dams and nitrate plants, which may be built, to conform to the same terms.

5. LOCKS OR LIFTS.—It is further agreed that the lessee will construct for the Government the locks or lifts for the purpose of maintaining navigation over the dam or dams to be constructed at Muscle Shoals.

~~6. MANUFACTURE OF NITRATES.—The lessee agrees to operate the nitrate plants, now a part of the property (which have an estimated capacity of 120,000 tons per annum), together with other plants that may hereinafter be built, to manufacture such fertilizer compounds or mixtures and complete fertilizers as approved by the Secretary of Agriculture, and to commence operation of one plant within one year after it acquires possession, and as soon as sufficient power is generated by the hydro-electric plants belonging to the property, it will operate at full capacity all the plants that can be operated from the receipts of the sale of the fertilizer compounds, together with the receipts from one mill per kilowatt hour, from sale of all power generated in excess of that required to operate the plants.~~

6. MANUFACTURE OF NITRATES.—When the two nitrate plants, now a part of the property, which plants have an estimated capacity of 120,000 tons of ammonium nitrate per annum, have been redesigned and reconstructed as herein provided to manufacture such nitrates as are needed for commercial fertilizers, fertilizer compounds or mixtures as approved by the Secretary of Agriculture, the lessee agrees to operate said plants under the following conditions: As soon as adequate hydro-electric power, generated at dam No. 2 becomes available, lessee will commence to operate both plants and will continue such operation to the capacity they can be operated, after deducting operating expenses, from the receipts of the sale of:

(a) Nitrates and fertilizer compounds,

(b) Seventy-five per cent of all marketable by-products not required for the manufacture of nitrates or fertilizer compounds,

(c) 66 2-3% of all power generated in excess of that required to operate the plants, which is sold by lessee either to itself or to other parties, provided that the price at which power, if any, is sold to lessee is subject to approval by the Secretary of War.

The term "Operating expenses" as used herein shall be understood to include the necessary and legitimate expenses for the proper operation of the entire plant for the purposes set forth in this agreement, including maintenance, alteration, repairs and replacements but not including the salaries of officers, directors, general manager, supervising engineer and counsel fees of the operating company, the lessee.

When additional dams and nitrate plants shall have been built, they shall be operated by the lessee under the same terms, except that the percentage of receipts from the excess power sold from such dam or dams, which is to be turned into the fund for the operating of such plants or to be paid into the treasury, as the case may be, shall be 75% thereof instead of 66 2-3% of such power from Dam No. 2 (as provided in subparagraph (c) above) and shall be in addition thereto.

7. ALTERATIONS OF NITRATE PLANTS.—It is also agreed that the lessee will make such alterations, additions, or changes in the nitrate plants as may be required to produce the nitrates or other fertilizer compounds approved by the Secretary of Agriculture, and to be completed within the time required to produce hydro-electric power at Dam No. 2. After the plants have been put in operation under this lease the lessee shall make such additions or changes, from time to time, as may be necessary to produce the required fertilizer or fertilizer compounds approved by the Secretary of Agriculture, and such changes ~~and the cost of producing complete fertilizers,~~ are to be made as an operating charge. ~~from the funds on hand derived from the sale of fertilizer compounds, and the power not required to operate the plant.~~

8. PLANS OF ALTERATIONS.—It is agreed that the lessee will furnish the Secretary of War copies of the plans and specifications of the proposed changes to be made in the nitrate plants to fit them to produce the *nitrates and* fertilizer compounds approved by the Secretary of Agriculture. Such alterations are to be so designed as to keep the nitrate plant No. 2 in condition to produce explosive compounds with the least delay and expense.

9. RESEARCH.—The lessee agrees to maintain and operate a research department in cooperation with the Agriculture Department of the Government, for the purpose of developing the processes for the fixation of atmospheric nitrogen, the cost of research work to be charged to operating expenses of the plant.

10. CONSTRUCTION.—Lessee agrees to begin construction within ~~60 days from the~~ *a reasonable* time *after* it is given possession of the property and to continue such construction in a diligent, business, and workmanlike manner until all construction

work provided for under this contract shall be completed, according to terms hereinafter set forth, within three years from the time of possession, reasonable extension of time to be granted for delays over which the lessee has no control.

11. CHANGES.—It is further agreed that at any time during the construction, if, in the opinion of either party herein, the structures provided for in the plans have become, or are liable to become weak, dangerous, uncertain, or inefficient, they may request changes, extensions, or additions to be made in the plans for the purpose of increasing the strength, stability, duty, endurance, or efficiency of the dams, locks, power stations, or other structures to be built by lessee under provisions of this contract, such changes, extensions, or additions shall be submitted to the engineer representing the other party and to the surety company furnishing the bond of the lessee, and if such changes, extensions, or additions shall be approved by the engineer representing the other party and the surety company they are to become a part of this contract and become as binding on both parties, and the bonds of the lessee, as if originally written herein.

12. ARBITRATION.—It is also provided that, in event a request of either party for changes, extensions, or additions in the plans for any of the purposes set forth in the foregoing paragraph of this contract has been approved by the surety on the bond of the lessee and has not been approved by the engineer representing the other party, then the questions of endurance or strength of such material or members as can be determined by physical test shall be submitted to the United States Bureau of Standards for final determination, and all questions as to the effect of the proposed changes, extensions, or additions upon the increase of strength, stability, duty, endurance, or efficiency of the dams, locks, power stations, or other structures to be built under this agreement, the plans for the changes as requested shall be submitted to the engineering faculty, or such members thereof who will undertake the work, of one or both of the following-named universities or schools of technology: Massachusetts Institute of Technology, Cambridge, Mass.; Cornell University, Ithaca, N. Y.; and the report of such faculty or faculties, if submitted to more than one, together with the report of the Bureau of Standards, shall be final, and if such report of the Bureau of Standards and faculties of technical schools, mentioned herein, show that the proposed changes, extensions, or additions will materially increase the strength, stability, duty, endurance, or efficiency of the structures affected by the changes, extensions, or additions, then such changes, extensions, or additions shall become a part of the working plans of this contract, the same as if they were originally written herein, or had been approved by the engineers of both parties and the surety bond.

13. COSTS OF TESTS.—It is also understood and agreed that the cost of testing, consulting, or other expenses caused by the request for changes in the plans as provided for, shall be a part of the construction cost provided herein.

14. REPRESENTATIVES.—It is understood and agreed that during the time of construction that both parties hereto shall designate an engineer to represent them on the work and the acts of such engineer shall be binding as to the party designating him as a representative.

15. INVESTMENT.—It is agreed that the lessee will not be required to invest in the manufacture of nitrates or other fertilizer compounds any money other than that received from the ~~sale of the products of the nitrate plants plus 1 mill per kilowatt hour received from the sale of power in excess of that required to operate the plant~~ *sources enumerated in paragraph 6. The lessee agrees, however, to advance all the money that may be necessary for "operating expenses" until sufficient funds are received from the sources enumerated in paragraph 6; the said money so advanced to be reimbursed as soon as practicable.*

16. SALE OF PRODUCTS.—It is further agreed that the lessee will sell all ~~fertilizer~~ *nitrates* and fertilizer compounds produced by the plant at prices and on conditions and terms approved by the Secretary of Agriculture, *and also will sell all by-products not required in the manufacture of fertilizer compounds for which there is a market, and all excess power for which there is a market; it being understood and agreed that primary power may be sold and the nitrate plants may be operated by secondary power to the extent that the same can be done to assure the best financial returns for the operation of the plant and to produce a maximum of nitrates and fertilizers under this contract.*

17. ADDITIONAL PLANTS.—It is further agreed that in event the development of power for use and sale from this plant, together with the receipts from the sale of products, should be insufficient to produce the amount of fertilizer compounds required to supply the demands, the lessee agrees to construct, under the terms of this agreement, other power plants or storage reservoirs, upon sites owned by the Government and selected by the Secretary of War and itself, said plants or storage reservoirs to be constructed and operated under the general terms of this agreement for the purpose of enabling it to provide the fertilizer compounds to meet growing needs.

~~18. PROFITS FROM NITRATES.—It is also further agreed that when nitrates can be made at a profit or when the cost of the same has been so reduced that the funds arising from the sale of excess power and fertilizer compounds are not needed in whole or in part for financing such productions as herein provided, the said funds shall be paid by the lessee into the Treasury of the United States.~~

18. PROFITS FROM NITRATES.—It is further agreed that when nitrates for fertilizers and fertilizer compounds can be made at a profit, or when the cost of the same has been so reduced that the funds arising from the sources enumerated in paragraph 6 are not needed in whole, or in part, for financing such productions as herein stated, the said funds, not needed for operating expenses, shall be paid by the lessee into the Treasury of the United States. When said funds paid into the Treasury shall be in excess of the amount received from sal of excess power as described in pragraph 6, it is understood and agreed that during the period such conditions exist, fertilizers are made at a corresponding profit and the lessee shall be entitled to twenty-five per cent of such profit.

19. CONSIDERATION.—In consideration of the performance of the foregoing proposals and conditions the Government shall agree to pay to the lessee ~~the cost plus 5 per cent of~~ *for* the completion of Dam No. 2, the initial alterations of nitrate plants No. 1 and No. 2, ~~and~~ the completion of the locks at Dam No. 2, *the completion of steam plant No. 1 to a capacity of 10,000 K. W. and steam plant No. 2 to a capacity of 90,000 K. W.* and, when required by the Government, ~~to build~~ *for the building of* Dam No. 3 *and nitrate plant No. 3* and the locks at Dam No. 3 and additional *dams and nitrate* plants and storage reservoirs, *the actual cost of the same, respectively, together with a fee of five per cent on such cost in each case,* ~~on the same terms,~~ in monthly payments, as per estimates of the engineers upon schedules of work performed. The cost in each case is to be determined by the lowest responsible bid resulting from a public offer by lessee and by the contract awarded by lessee to such bidder subject to approval by the Secretary of War. *It is understood and agreed, however, that if the Government shall decide to finish Dam No. 2, that lessee will accept a lease subject to that modification of this proposal.*

20. PAYMENTS.—It is agreed ~~herein~~ that the engineers representing the Government *and lessee* ~~will~~ *shall* on the first of each month furnish the lessee *and the Secretary of War* an estimate of the work performed and a statement of the amount earned by ~~it~~ *lessee* during the preceding month.

21. STORES, STOCK, AND EQUIPMENT.—All stores, supplies, equipment, including engineers' supplies, files and instruments, and other loose personal property now on or about the premises, whether or not required for construction purposes, but not including subsistence stores, shall become the property of the lessee upon the execution of this contract.

~~22. COMPENSATION.—It is further agreed that as a part of the compensation for the performance of this contract the lessee will retain the proceeds from the sale of power not required to operate the plant or plants, and locks or lifts, over and above the 1 mill per kilowatt hour required for financing the production of fertilizer compounds, or to be paid into the United States Treasury as set forth in this agreement.~~

22. COMPENSATION.—It is further agreed that as compensation for the performance of this contract the lessee shall retain:

(a) The proceeds from the sale of 33 1-3% of excess power from Dam No. 2 not required to operate the plant or plants, and locks or lifts; the other 66 2-3% to be contributed for operating expenses as provided in paragraph 6; and, when Dam No. 3 is built, the proceeds from the sale of 25% of excess paragraph from Dam No. 3 not required to operate nitrate plant No. 3 and locks or lifts at Dam No. 3, the other 75% to be contributed toward the operating expenses as provided in paragraph 6; the same percentage last above named, to apply to all other dams and nitrate plants that may be built hereunder.

(b) The proceeds from the sale of twenty-five per cent of all by-products for which there shall be a market and not required in the manufacture of fertilizer compounds or mixtures; the other seventy-five per cent to be contributed toward operating expenses as provided in paragraph 6.

(c) Twenty-five per cent of the profits on the manufacture of fertilizer compounds if and when the same shall be made at a profit as provided for in paragraph 18; the other seventy-five per cent to be contributed toward operating expenses as provided in paragraph 6.

23. POWER FOR LOCKS.—The lessee agrees to furnish to the Government, free of charge, all power required to operate the locks or lifts which are to be operated by the Government.

24. EMERGENCY PROVISION.—The lessee agrees to place the property or any part thereof, at the disposal of the Government in the event of war or any other public emergency, or to operate the same for the Government to manufacture nitrates, ex-

plosives, or munitions of war or for other purposes necessary for the safety of the United States, as the Government may require.

25. BOND.—The lessee agrees to protect the Government for the full and faithful performances of the contract by giving a good and sufficient surety bond, to be approved by the Government.

26. INSPECTION.—It is agreed that the Government experts, inspectors, and accountants can, at all reasonable times, examine the books, papers, accounts, meters, and such other accessories of the plant necessary to satisfy them whether or not the lessee is executing this contract in good faith.

27. REPAIRS.—It is also agreed that should the foundation of Dam No. 2 be found defective or show excessive leakage, the Government will pay to the lessee the expense of the necessary repairs, including a reasonable allowance for overhead.

28. PROPOSAL DIVISIBLE.—The above proposals are submitted for acceptance in whole or in part as provided in section 19 hereof. Upon acceptance it shall be binding upon the Government, and the lessee, its successors and assigns; and all contracts, leases, and other instruments necessary or appropriate to effectuate the purpose of this proposal as accepted shall be duly executed and delivered by the respective parties above mentioned.

In witness whereof, the United States of America has caused these presents to be executed by the Secretary of War, pursuant to the authority conferred upon him by act of Congress, approved the —— day of ——, 1922, entitled "An act to provide for the lease and completion of Muscle Shoals and for other purposes," and the said Frederick E. Engstrum has set his hand on the day and year first herein above set forth

UNITED STATES OF AMERICA,
By ——— ———, *Secretary of War.*
FREDERICK E. ENGSTRUM.

WASHINGTON, D. C., *April 17, 1922.*

Hon. JULIUS KAHN,
Chairman House Committee on Military Affairs.

MY DEAR MR. CHAIRMAN: I beg to submit herewith an amended form of proposed contract for completion and lease of Muscle Shoals project by Frederick E. Engstrum. The parts to be omitted are struck through and the parts inserted are in italic.

This amended proposal is submitted partly to clear up points that were brought out by questions of members of the committee during the hearing before the House committee and partly as the result of a personal inspection made by Mr. Engstrum of the various properties pertaining to the Muscle Shoals project.

It is believed that the amended proposal will clear up many points about which there seemed to be doubt in the minds of members of the committee, and also, it is believed, that the changes made will all result in advantages to the Government.

The material amendments are as follows:

Paragraph 2: The Warrior steam plant is eliminated. The inspection of the property indicates that this plant is so intimately interwoven with the Alabama Power Co. plant that it really forms an integral part of that plant and probably can not be separated therefrom without seriously interfering with its efficient operation.

Paragraph 4: Capacity of nitrate plants No. 1 and No. 2 is increased by 5,000 kilowatts and 30,000 kilowatts, respectively. Such increase becomes necessary to replace power lost by eliminating the Warrior plant, the sales value of which is reported by the Ordnance Department to be $3,000,000. Plants No. 1 and No. 2 can be modified as proposed, it is estimated, for less than $1,500,000, thus saving the Government about $1,500,000. This low estimate is due to the fact that steam plant No. 2 has boiler installation now for 90,000 kilowatts and electrical installation for only 60,000 kilowatts, but the foundations are prepared for the installation of 90,000 additional kilowatts electrical power.

Paragraph 4 also provides for construction of nitrate plants at other dams and reservoirs that may be constructed in the future; such new plants to have same capacity ratio to power produced at such dams as is the ratio of plants No. 1 and No. 2 to Dam No. 2.

Paragraph 6: This paragraph is rewritten and materially modified. As rewritten it enumerates clearly and definitely the sources of revenue that are to be applied by the lessee to the manufacture of nitrates, etc., at nitrate plants No. 1 and No. 2. It defines what is understood by the term "operating expenses" and lays down definitely the policy under which nitrate plants are to be operated, if and when additional dams and nitrate plants shall have been constructed. It is perhaps pertinent to call attention to the fact that under paragraph 6 when additional dams and nitrate plants are constructed the lessee's share of the receipts from the sale of excess power, generated at such dams,

will be reduced from 33⅓ per cent to 25 per cent. This, it is believed, is practicable, due to the fact that lessee's overhead and general expenses for the operation of such additional plants will not increase in the same proportion, and, consequently this reduction in his receipts is made.

Paragraph 15: The addition to this paragraph is a specific statement that the lessee agrees to advance the necessary funds for operating expenses until the funds enumerated in paragraph 6 shall become adequate for that purpose.

Paragraph 16: The material addition to this paragraph provides that secondary power may be used to operate the nitrate plants when this can be done to insure the best financial terms so as to produce the maximum amount of nitrates.

Paragraph 18: This paragraph provides for the disposition of funds received from various sources enumerated in paragraph 6, when they are not wholly needed for the production of fertilizers, etc. It also defines when it is agreed that a profit is made on the manufacture of fertilizers at the price fixed by the Secretary of Agriculture, and that when such profit is made that the lessee shall be entitled to 25 per cent of said profit. This furnishes a motive for lessee to improve to the utmost the processes of manufacture and reduce to the minimum the operating expenses.

Paragraph 19: The material change in this paragraph provides that in case the Government should so elect it may itself finish dam No. 2 by its own engineers, and lessee will accept the lease subject to that modification.

Paragraph 22: This paragraph is entirely rewritten as a result of the modifications made in paragraph 6. This paragraph provides that the lessee shall retain 33⅓ per cent of the proceeds received from the sale of all power not required to operate the nitrate plant or plants and locks or lifts generated at Dam No. 2 and steam plants No. 1 and No. 2, but that in case additional dams be constructed lessee will retain only 25 per cent of the proceeds of corresponding sales at such dams. This paragraph also provides that lessee shall retain 25 per cent of profits of the sale of all by-products, and finally in case a profit should be made on fertilizers, under the provisions laid down in paragraph 6, he shall be entitled to 25 per cent of such profits. It should be remarked that this paragraph is complementary to paragraph 6, and should be interpreted accordingly.

Paragraph 28: This is a new paragraph and is self-explanatory.

A careful reading of this amended proposal is requested, because one of the main objects in making the amendments, aside from clearness and definiteness, has been to make the interests of the lessee parallel with the interests of the Government, so that he shall have the proper motives for the utmost economy in operation and the greatest efforts in improving the processes for fixation of nitrogen and for the production of fertilizer compounds. It has also been attempted, to clarify the policy contained in this proposal, to devote all available sources of revenue to the production of fertilizers at reduced prices in time of peace and to have the plants in condition to produce nitrates for explosives, with the least possible delay, in time of war or other emergencies; and this proposal makes this policy applicable to the whole project, however far it may be extended in future. In so far as lessee is informed, this proposal is the only one submitted which guarantees with definite provisions that such policy shall prevail.

Respectfully submitted.

FREDERICK E. ENGSTRUM.

To the Committee on Military Affairs of the House of Representatives:

Whereas Mr. Henry Ford, of Michigan, has submitted an offer to the United States Government for what is known as Muscle Shoals; and

Whereas in said offer he obligates himself to operate the nitrate plants at full capacity continuously for the manufacture of fertilizer, and agrees to sell same to the farmers at the low profit of 8 per cent over the actual cost of manufacture; and

Whereas in said offer of Mr. Ford he agrees that the President of the United States shall appoint a board who shall have access to the books of Mr. Ford for the purpose of investigating whether he is charging the farmers in excess of 8 per cent profit, and also to control the sale and distribution of said fertilizer, and also obligates himself to keep said plant in such condition as it will be available for the manufacture of explosives and munitions in case of emergency; and

Whereas the public generally has implicit confidence in the honor, integrity, and business judgment of Mr. Ford, and his ability to develop to the highest possible degree the superb water power at Muscle Shoals, and also to manu-

facture fertilizer at the lowest possible cost, in which confidence we share; and

Whereas, in our judgment, if the contract is made with Mr. Ford he will establish large manufacturing plants operated by hydroelectric power, which will give employment to thousands of citizens of the United States:

Now, therefore, we, the undersigned Members of Congress from the State of Georgia, earnestly and respectfully urge you to report a bill to the House at the earliest practicable moment providing for a contract with Mr. Ford for Muscle Shoals.

J. W. Overstreet, first district; Frank Park, second district; Chas. R. Crisp, third district; W. C. Wright, fourth district; Wm. D. Upshaw, fifth district; J. W. Wise, sixth district; Gordon Lee, seventh district; C. H. Brand, eighth district; Thos. M. Bell, ninth district; Carl Vinson, tenth district; W. C. Lankford, eleventh district; W. W. Larsen, twelfth district.

PETITION OF OFFICIALS OF JEFFERSON COUNTY, ALA.

STATE OF ALABAMA,
Jefferson County.

Hon. E. B. ALMON,
Member of Congress, Washington, D. C.:

We urge the Government to accept the offer of Henry Ford for Muscle Shoals, because we believe that it will be developed by him for the benefit of the American people. We protest against the acceptance of offer of Alabama Power Co., because it would insure to it the control of every large water-power site in Alabama and thereby fasten upon our people for all times a water-power monopoly.

M. V. Henry, county treasurer; J. P. Triees, judge probate, Jefferson County, Ala.; William E. Fort, judge criminal division, circuit court (10th circuit of Alabama); H. P. Heflin, judge criminal division circuit court (10th circuit of Alabama); Joseph W. Tate, solicitor 10th judicial circuit of Alabama; C. B. Smith, judge civil division circuit court; J. V. Sim, judge civil division circuit court; J. B. Curd, judge civil division circuit court; Hugh S. Locke, judge civil division circuit court; Wm. J. Waedrop, clerk of circuit court; Richard V. Evans, circuit judge; R. Maine Boyd, circuit judge; D. C. Ball, president board of revenue; Lacey E. Imuedson, board of revenue; T. E. Huey, board of revenue; J. W. Gwin, board of revenue; W. B. Copeland, board of revenue; Jas. F. Hawkins, tax collector; J. C. Hartsfield, sheriff; L. R. Dillon, tax assessor of Jefferson County; M. E. Morris, chairman board of registrars, Jefferson County; Conrad H. Ohme, engineer, Jefferson County.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE.
Washington.

Contract T 69, December 1, 1918, with Alabama Power Co.
Authority of Lieut. Col. William Williams to sign contract.

"The Chief of Ordnance, subject to the approval of the Secretary of War, is hereby authorized and directed to draw up and enforce in his department a system of rules and regulations for the government of the Ordnance Department and of all persons in said department, and for the safe-keeping and preservation of all Ordnance property of every kind, and to direct and prescribe the time, number, and forms of all returns and reports, and to enforce compliance therewith." (Act of February 27, 1877 (19 Stat. 242), amending R. S.)

"It shall be the duty of the Chief of Ordnance to furnish estimates and, under the direction of the Secretary of War, to make contracts and purchases, for procuring the necessary supplies of ordnance and ordnance stores for the use of the armies of the United States; to direct the inspection and proving of the same; and to direct the construction of all cannon and carriages, ammunition wagons, traveling forges, artificers' wagons, and of every implement and

apparatus for ordnance, and the preparation of all kinds of ammunition and ordnance stores constructed or prepared for said service." (R. S. 1164.)

Paragraph 95, General Order 7, Chief of Ordnance, October 14, 1917:

"OFFICERS AUTHORIZED TO MAKE PURCHASES.

"95. Commanding officers of arsenals and other ordnance stations and such other officers as may be detailed for the duty are hereby authorized to contract on behalf of the United States for and to make the necessary purchases of ordnance, ordnance stores, and supplies, and the procurement of services under the direction of the Chief of Ordnance."

Attached are copies of Office Orders, No. 157, 284, 357, 499, 518, and 539, issued by the office of the Chief of Ordnance covering the designation of Lieut. Col. William Williams as contracting officer.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
Washington.

Office Order No. 157 (authority to execute contracts).

Office Order No. 145, relating to officers authorized to execute contracts, is hereby rescinded, and the following substituted therefor:

1. Contracts with private manufacturers to meet the schedules of requirements for ordnance and ordnance stores and supplies will be executed only by the Procurement Division of the Ordnance office. The following officers, but no others, are hereby authorized to execute such contracts:

Samuel McRoberts, colonel, Ordnance, National Army.
Charles N. Black, lieutenant colonel, Ordnanme, National Army.
R. P. Lamont, lieutenant colonel, Ordnance, National Army.
C. F. Cook, major, Ordnance, National Army.
Wm. Williams, lieutenant colonel, Ordnance, National Army.

2. Paragraph A of section 6 of Office Order No. 104 is hereby amended to the extent necessary to give effect to the foregoing.

C. B. WHEELER,
Brigadier General, Ordnance, National Army,
Acting Chief of Ordnance.

Official:
W. S. PEIRCE,
Brigadier General, Ordnance, National Army.

Copies sent to: Chief of bureaus and divisions, heads of sections, arsenals.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
WASHINGTON, *July 31, 1918.*

Office Order No. 284 (authority to execute contracts).

Office Orders Nos. 145, 157, 181, 184, 192, and 228 are hereby rescinded and the following substituted therefor:

1. All contracts that may be entered into by the Procurement Division shall be made in the name of and signed by one of the following-named, who are hereby designated contracting officers:

Samuel McRoberts, colonel, Ordnance, National Army.
Chas. N. Black, lieutenant colonel, Ordnance, National Army.
R. P. Lamont, lieutenant colonel, Ordnance, National Army.
Wm. Williams, lieutenant colonel, Ordnance, Natioinal Army.
C. W. Watson, lieutenant colonel, Ordnance, National Army.
Ralph Crews, lieutenant colonel, Ordnance, National Army.
J. H. Watkins, major, Ordnance, Reserve Corps.

2. The chief of any division is hereby likewise authorized to execute contracts for personal services or work incident to the operations of such division and not within the scope of the activities of the Procurement Division.

3. Every contract shall be signed personally by the officer whose name appears in the body of the contract as the contracting officer, and he shall make the affidavit required by paragraph 563, Army Regulations.

4. Samuel McRoberts, colonel, Ordnance, National Army, is hereby appointed to act as successor to the contracting officers under all contracts heretofore

made by the various divisions now merged in the Procurement Division, and is vested with all the powers and duties of the contracting officers under said contracts.

C. C. WILLIAMS,
Major General, Chief of Ordnance, United States Army.

Official:
W. W. GIBSON,
Colonel, Ordnance Department, United States Army.

Copies sent to: Chiefs of divisions and sections, arsenals, and district offices.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE.
Washington, October 16, 1918.

Office order No. 357 (authority to execute contracts).

Paragraph No. 1 of office order No. 234 is hereby amended to read as follows:

1. The following officers of the procurement division are authorized to contract for any equipment, facilities, supplies, matériel, and other property required by the Ordnance Department:

R. P. Lamont, lieutenant colonel, United States Army.
William Williams, lieutenant colonel, United States Army.
J. H. Watkins, lieutenant colonel, United States Army.
Dale Bumstead, lieutenant colonel, United States Army.
A. W. Fairchild, major, United States Army.
W. H. Gelshenen, major, United States Army.
R. H. Swartwout, major, United States Army.

2. Such authority heretofore granted to officers other than those named is hereby revoked.

C. C. WILLIAMS,
Major General, Chief of Ordnance, United States Army.

Official:
W. S. PEIRCE,
Brigadier General, Ordnance Department, United States Army.

Copies sent to: Chiefs of divisions and sections, arsenals, and district offices.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
Washington, January 6, 1919.

Office order No. 499 (authority to execute contracts).

1. Office order No. 357 is hereby amended so as to provide that only the following officers of the procurement division are authorized to contract for any equipment facilities, supplies, material, and other property required by the Ordnance Department: R. P. Lamont, colonel, United States Army; William Williams, lieutenant colonel, United States Army; R. D. Day, major, United States Army; R. H. Hawkins, major, United States Army; C. E. Sholes, major, United States Army.

C. C. WILLIAMS,
Major General, Chief of Ordnance, United States Army.

Official:
W. H. TSCHAPPAT,
Colonel, Ordnance Department, United States Army.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
Washington, January 16, 1919.

Office order No. 518 (authority to executive contracts).

1. Lieut. Col. M. G. Baker is hereby authorized to contract for any equipment, facilities, supplies, matériel, and other property required by the Ordnance Department.

2. This order supplements office order No. 499, dated January 6, 1919.

C. C. WILLIAMS,
Major General, Chief of Ordnance, United States Army.

Official:
W. H. TSCHAPPAT,
Colonel, Ordance Department, United States Army.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
Washington, February 4, 1919.

Office order No. 539 (authority to execute contracts).

1. The following officers of the administration division are authorized to contract for any equipment, facilities, supplies, matériel, and other property required by the Ordnance Department: R. H. Hawkins, major, United States Army; A. C. Hindman, major, United States Army; E. B. Cooper, captain, United States Army.

2. This order supersedes office orders Nos. 357, 499, and 518.

C. C. WILLIAMS,
Major General, Chief of Ordnance, United States Army.

Official:
W. W. GIBSON,
Colonel, Ordance Department, United States Army.

[Extract from hearing before the Committee on Agriculture and Forestry, United States Senate, 66th Cong., 2d sess., on S. 3390.]

Nitrate of soda imports from Chile to United States.

[Statistics from Bureau of Foreign and Domestic Commerce, Department of Commerce.]

Fiscal year—	Long tons.	Value.	Average value per 100 pounds.	Export duty.
1867	13,150.00	$563,624.20	$1.92	(1)
1868	8,230.00	282,785.00	1.54	(1)
1869	12,900.00	600,691.00	2.08	(1)
1870	13,900.00	752,604.00	2.42	(1)
1871	22,400.00	1,254,963.00	2.49	(1)
1872	16,000.00	934,118.00	2.61	(1)
1873	26,700.00	1,469,243.00	2.46	(1)
1874	27,700.00	1,338,141.00	2.16	(1)
1875	23,300.00	968,855.00	1.85	(1)
1876	23,100.00	1,055,357.00	2.04	(1)
Total		9,220,381.20		(1)
1877	24,300.00	1,324,299.00	2.44	(1)
1878	18,800.00	973,223.00	2.32	(1)
1879	34,100.00	1,348,880.00	1.76	$142,538.00
1880	30,400.00	1,830,396.00	2.69	380,912.00
1881	43,800.00	2,356,167.00	2.40	548,814.00
1882	82,300.00	3,911,610.00	2.12	1,031,219.00
1883	57,200.00	2,336,681.00	1.82	716,716.00
1884	54,000.00	1,983,378.00	1.64	676,620.00
1885	48,800.00	1,696,055.68	1.55	611,464.00
1886	45,100.00	1,681,824.14	1.67	565,103.00
Total		19,442,513.82		4,673,386.00
1887	76,800.00	2,614,162.00	1.52	962,304.00
1888	80,000.00	2,449,639.40	1.37	1,002,400.00
1889	67,500.00	2,275,993.00	1.51	845,775.00
1890	91,300.00	2,709,130.72	1.33	1,143,989.00
1891	98,091.67	2,929,759.78	1.34	1,229,087.3721
1892	105,341.47	2,976,818.00	1.26	1,319,928.6191
1893	93,436.55	3,063,012.00	1.46	1,170,759.9715
1894	88,079.00	2,785,048.00	1.42	1,103,629.87
1895	124,803.00	4,124,712.00	1.48	1,563,781.59
1896	127,557.00	3,870,724.00	1.35	1,598,289.21
Total		27,798,998.90		11,939,944.63
1897	83,331.00	2,640,389.00	1.42	1,044,137.43
1898	125,081.00	2,729,750.00	.98	1,567,264.93
1899	122,314.00	2,054,805.00	.75	1,532,594.42
1900	184,247.00	4,736,807.00	1.15	2,308,614.91
1901	203,609.00	5,776,566.00	1.27	2,551,220.77
1902	192,321.00	5,565,361.00	1.29	2,409,782.13
1903	252,084.00	7,737,405.00	1.37	3,158,612.52
1904	293,574.00	9,259,656.00	1.41	3,678,482.22
1905	282,229.00	9,683,396.00	1.53	3,536,329.37
1906	373,986.00	13,117,887.00	1.56	4,686,044.58
Total		63,302,022.00		26,473,083.28

[1] None.

Nitrate of soda imports from Chile to United States—Continued.

Fiscal year—	Long tons.	Value.	Average value per 100 pounds.	Export duty.
1907	342,073.00	$14,041,202.00	$1.83	$4,286,174.69
1908	330,090.00	12,546,611.00	1.69	4,136,027.70
1909	353,494.00	12,583,417.00	1.58	4,429,279.82
1910	550,495.00	16,874,682.00	1.37	6,897,702.35
1911	546,525.00	17,101,140.00	1.40	6,847,958.25
1912	481,739.00	15,431,892.00	1.43	6,036,189.67
1913	589,136.00	20,718,968.00	1.57	7,381,874.08
1914	564,049.00	17,950,786.00	1.42	7,067,533.97
1915	577,122.00	16,355,701.00	1.26	7,231,338.66
1916	1,071,728.00	32,129,397.00	1.35	13,428,751.84
Total		175,733,796.00		67,742,831.03
1917	1,261,659.00	44,231,240.00	1.57	15,808,587.27
1918	1,607,020.00	70,129,026.00	1.95	20,135,960.60
1919	1,346,679.00	68,229,548.00	2.27	16,873,887.87
Total		182,589,814.00		52,818,435.74
Grand total	13,313,673.59	480,087,147.92		163,647,680.6827

NOTE.—The value given here is based on the value at the port in Chile, and does not include export duty paid to the Chilean Government, ocean freight, insurance, commissions, etc. Before 1914 freight from Chile to the United States was about $7.50 per ton; at the present time it is about $17.50. In 1879 an export duty was put on nitrate shipments from Chile and amounted to about $4.18 per long ton. In 1880 this duty was raised to $12.53 per long ton and has not been changed since that time. The export duty paid to the Chilean Government on all nitrate of soda coming to the United States up to July 1, 1919, would amount to $163,647,680.6827.

Value at Chilean port	$480,087,147.92
Export duty to July 1, 1919	163,647,680.68
	643,734,828.60
Ocean freight, insurance, commissions, etc., from 1867 to 1919	177,448,795.52
Total	821,183,624.12
Estimating the same 10-year increase in shipments of Chilean nitrate to the United States, our bill to Chile since 1867 will stand in 1928 (on the basis of nitrogen consumption doubling every 10 years)	578,860,821.06
Total	1,400,044,545.18

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, August 15, 1921.

Memorandum for the Secretary of War.

1. In response to your instructions given me orally in your office to-day to file with you any additional information in my possession bearing on my letter to you of July 23, re completion of dam and hydroelectric development at Muscle Shoals, Tennessee River, I desire to submit the following:

2. Since the publication in the press of Mr. Ford's proposition to lease Dams Nos. 2 and 3 and certain other tributary property, all as enumerated in his letter of July 8, 1921, and since the publication in the press of my letter to you of July 23, and many newspaper comments on both the above letters, I have discovered that my letter to you of July 23 was and is unintentionally incomplete in the information that should be in your hands. I desire, therefore, to hand you herewith a copy of my letter of even date to Mr. Secretary Mellon in answer to his request made of me for additional information from which you will see that my estimate for the total cost of Dam No. 2 is $40,000,000, provided no untoward events or unforeseen expenses are incurred. The cost of Dam No. 3 is estimated at $24,000,000. If abnormal river flow and serious foundation troubles are encountered, the costs may possibly rise to $45,500,000 and $28,000,000.

3. Your attention is also invited to a misunderstanding of the consulting engineer's reports regarding the capacity to be installed at Dam No. 2. The

planned capacity of the generating plant is 550,000 horsepower, not 600,000 horsepower, as hitherto reported to you by me. I desire further to state that the last two sentences in paragraph 9 in my letter to you of July 23 are based, as stated, on Mr. Ford's figures of $20,000,000 and $8,000,000 as costs to complete Dams Nos. 2 and 3, and these two sentences need modification to include the estimates of cost to complete, herewith transmitted, and also to include the amount expended on Dam No. 2 to date of approximately $17,000,000.

4. It has occurred to me to suggest that in view of the wide interest in this power development on the Tennessee, and in view of its importance to the country at large, and in view of the great value to various private interests of the electric energy here possible of production, and in view of the fact that there is no existing statute allowing any contract between private capital and the Federal Government for the use or lease or sale of the power here considered, the Congress be asked to give the Secretary of War full authority to sell or lease the property at Dams Nos. 2 and 3 (either or both) on a basis that the Government of the United States shall receive a net minimum of not less than 5 per cent on the total amount of money expended by the United States in the construction of one or both of these dams. This 5 per cent net minimum would involve operation (except of the locks) and maintenance by the purchaser or lessor. An arrangement of this kind, I think, should be possible, and such a plan would be equitable alike to the Government and to private capital. Such authority should also be granted you as Secretary of War, giving you the alternative opportunity of providing for the completion of Dams Nos. 2 and 3 (one or both) on some basis found equitable by you whereby these two projects (either or both) may be completed ready for use.

LANSING H. BEACH,
Major General, Chief of Engineers.

The United States Government, through Gen. Lansing H. Beach, Chief of Engineers, asks the southeastern power companies the following question:

"The Secretary of War has directed me to ascertain what arrangements can be made to derive a reasonable return upon the investment if the United States completes the dam and hydraulic power plant at Muscle Shoals, Tennessee River."

The answer to that question depends upon a correct determination of the following points:

(1) What commercially usable power output can be produced at Muscle Shoals, Tennessee River, taking into consideration the flow of the river, its characteristics, and Government regulation requiring a uniform river flow for navigation of not less than 10,000 second feet at all times?

(2) What market is available for the sale of the power and at what rates?

(3) What gross revenue can be derived from the sale of the commercially usable available power output?

ANSWER TO QUESTION (1) ABOVE.

(*a*) Based on data contained in various reports available, which further investigations have confirmed, the continuous 24-hour primary power, i. e., 100 per cent use of available power is approximately 700,000,000 kilowatt hours per annum.

This figure is arrived at by assuming a plant capacity of 100,000 kilowatts and operating at 100,000 kilowatts for 12 daylight hours and at 60,000 kilowatts during 12 night hours. To obtain a plant capacity of 100,000 kilowatts during periods of high water it will be necessary to have an installation considerably in excess of that amount.

The portion of the 700,000,000 kilowatt-hours primary power per annum which could be used under existing commercial conditions in southeastern territory is estimated to be 570,000,000 kilowatt hours per annum maximum, including displacement of approximately 135,000,000 kilowatt hours at present produced by steam; and in view of the uncertainty of the amount of steam which could be displaced and of the amount of power which could be taken at night, it would be safer to estimate upon not to exceed 500,000,000 kilowatt-hours maximum. It is estimated that the demand for power in southeastern territory will absorb this latter amount of additional power by the year 1927.

There are nine years during the 26-year period covered by the hydrograph of the Tennessee River at Florence, Ala., during which the total availability of

primary power on 100 per cent load factor was less than 700,000,000 kilowatt hours per annum. To supply such deficiencies which will undoubtedly occur periodically in future as they have in the past, steam backing equal to the full capacity of the Sheffield steam plant—i. e., 60,000 kilowatts—must be exclusively available subject to call to meet such deficiencies. In certain years that capacity would not have been sufficient.

(*a*–1) The 10 months' secondary power which it is possible to produce at Muscle Shoals has little or no commercial value.

ANSWER TO QUESTION (2) ABOVE.

(*b*) The only market for the power at present available is the market served by the southeastern power companies, and the rates for delivered power permitted to be charged by those companies are the published rates fixed by the various public utility commissions of the States in which those companies operate, and the value of the power at Muscle Shoals must take into consideration all elements of cost between generation and delivery.

ANSWER TO QUESTION (3) ABOVE.

(*c*) The amount of gross revenue which it will be possible for the United States to derive from the sale of power is definitely fixed by the amount of commercially usable power available and the prevailing rates fixed by public regulation.

REASONS FOR CONCLUSIONS AS TO PRIMARY POWER.

Considering the southeastern territory (including Muscle Shoals) a study of hydrographs of the various rivers now serving the existing and proposed power plants shows that years come periodically when drought is coincident and shortage of water is general. Such years have come with unfailing certainty and will undoubtedly come in future.

The safe capacity rating for public service uses of the existing and proposed water-power developments, even granting the full effect of coordination of watersheds, is limited definitely to the sum total of their respective combined capacity ratings during these low years. This limitation is absolute and contracts to deliver primary power must not exceed it, except as supplemented by steam production.

The hydrograph of the Tennessee River at Florence, Ala., for 26 years (from 1894 to 1919, both inclusive) proves that there were 9 years during the 26-year period when it would have been necessary to use the Sheffield steam plant (and in certain of those years its full capacity would not have been sufficient) to supply the deficiency in primary power. This condition will inevitably occur periodically in future, and steam backing equal to the full capacity of the Sheffield steam plant must be exclusively available at all times to supply the deficiencies.

REASONS FOR CONCLUSIONS AS TO 10-MONTHS' SECONDARY POWER.

There is no coordination of the other existing and proposed water-power plants (including both storage and river-flow plants) in the southeastern territory under any plan of operation that seems commercially practicable that will convert any large amount of Muscle Shoals secondary power into continuous primary power; at least it would not be safe for public service corporations serving the commercial uses of the public to base contracts on any such result.

The hydrograph of the Tennessee River at Florence, Ala. for 26 years (from 1894 to 1919, both inclusive) shows frequent periods of time varying from portions of a month to an entire month, to several entire months, up to a year, when there is no 10 months' secondary power. There are only 3 years during the period of 26 years during which such periods or gaps do not occur. There are 7 years in the 26-year period observed during which there is either no 10 months' secondary power at all or only a negligible amount. These gaps in the 10 months' secondary power, together with the impossibility of predicting when they will occur, inevitably lead to the conclusion that the 10 months' secondary power has no commercial value for public-service use capable of measurement.

Steam backing to convert any substantial amount of 10 months' secondary power into primary would be very expensive, because a steam plant of large

capacity would have to stand by subject to call, probably continuously, certainly for large and frequently recurrent portions of almost every year, for operation under extremely variable conditions, both as to load and duration of time. Steam stand-by costs would be a permanent annual charge on the cost of the total power output, whereas the annual kilowatt-hour production by the steam plant would be relatively small and very costly, meaning an average cost per kilowatt-hour of the combined water and steam power produced, much in excess of water-power cost.

To attempt to convert any substantial amount of 10 months' secondary power into primary power by use of the Sheffield steam plant, owing to its characteristics and its location with respect to the distributing companies it would have to serve, would result in such a high average cost per kilowatt-hour delivered to the distributing companies as to make the total water and steam power produced unmarketable at the rates and standards of service fixed by the present rigorous public-service regulation in the Southeastern States. This steam plant, consisting of only one unit of 60,000 kilowatt, must be held exclusively in reserve at all times to make up the deficiencies in primary power; therefore it will not be available to convert 10 months' secondary power into primary power.

The above brief statement, together with a study of various reports, data, and hydrographs available, including original hydrographs of the Tennessee River prepared new from various standpoints at Florence, Ala., for 26 years (from 1894 to 1919, both inclusive) leads inevitably to the following conclusions in answer to the questions on page 2 of "progress report" of April 9, as follows:

"(*d*) From a strictly business commercial standpoint could private capital afford to undertake the Muscle Shoals development or make investments to use its output?

"(*e*) Can the Government afford to invest additional public money in the Muscle Shoals development?

"(*f*) If the Government, regardless of business considerations, in view of the large investment already made, determines to complete the Muscle Shoals development, on what basis, if any, can the southeastern power companies cooperate so that the United States may 'derive a reasonable return upon the investment,' or any partial return?"

ANSWER TO QUESTION (D) ABOVE.

(*g*) From a strictly business commercial standpoint, and considering the comparable cost of production of power at existing water-power plants and proposed water-power plants in the southeastern territory, private capital could not afford to undertake the Muscle Shoals water-power development nor make investments to use its output on the basis of the present plans. Under prevailing conditions and rates for which power is sold under regulation in the southeastern territory the usable primary continuous available power output of "the dam and hydraulic-power plant at Muscle Shoals, Tennessee River," can not be sold delivered to the public-service market at an average price that will pay operating expenses, taxes, reserve for renewals and replacements, and a fair rate of interest on the estimated cost of the proposed plant as planned, and upon the necessary transmission system to reach the distant and only market.

ANSWER TO QUESTION (E) ABOVE.

(*h*) Nor can the United States afford to invest additional public money to complete "the dam and hydraulic power plant at Muscle Shoals, Tennessee River," as planned if the same tests which control the investment of private capital are applied, because on the latter basis it can not be made to derive a reasonable rate of interest on the estimated total investment from the sale of the commercially usable available power to the public-service market, nor even on the amount necessary to complete the plant as estimated by Government engineers.

ANSWER TO QUESTION (F) ABOVE.

(*i*) If the United States, in view of the large investment already made, determines to complete the Muscle Shoals development as planned, the southeastern

power companies can cooperate so that the United States may derive a reasonable rate of interest upon some part of the cost of "the dam and hydraulic power plant at Muscle Shoals, Tennessee River." That portion of the investment upon which a reasonable rate of interest may be expected can be worked out with certainty, because the flow of the river limits the amount of commercially usable power available and the value of the product is definitely fixed by the rigid public-service regulation of rates and service in the Southeastern States.

But the Muscle Shoals water-power development is being constructed, and it is reported the United States has already spent approximately $17,000,000 on "the dam and hydraulic power plant" and navigation improvement there. If the United States decides to complete "the dam and hydraulic power plant at Muscle Shoals, Tennessee River," some of the southeastern power companies can reasonably cooperate with the United States to the extent of formulating and making a definite proposition for the lease of the plant or purchase of its output, but only within the limitations stated above. Economic conditions now existing, and undoubtedly permanent, demand that any arrangement with the United States for the lease of "the dam and hydraulic power plant at Muscle Shoals, Tennessee River," or for the purchase of the power output of the development, must be based exclusively on the commercially usable primary power. The details of this proposition can be readily formulated if the principles and data upon which it is to be based are agreed to.

If it is true, as estimated by the Government engineers, that the cost of the completed dam and hydraulic power plant and navigation improvements at Muscle Shoals, Tennessee River, will be $50,000,000 exclusive of transmission costs according to the plans upon which it is being at present constructed, a large portion of that amount will have to be charged off or charged to war loss and improvement of navigation, because the portion of the cost upon which the sale to the public-service market of the commercially usable available power output can be made to derive a reasonable rate of interest is limited definitely by the existing regulation by public authorities of rates and service in the southeastern territory.

This statement is based upon engineering data, hydrographs, and estimates of costs as to Muscle Shoals, as compared to actual costs and results of seven southeastern power companies.

GEORGIAN RAILWAY & POWER CO.,
By H. M. ACKINSON,
Chairman Board of Directors.

THE COLUMBUS POWER CO.,
By H. H. HUNT, *Vice President.*

CENTRAL GEORGIA POWER CO.,
By P. G. GOSSLER, *Vice President.*

TENNESSEE POWER CO.,
By C. M. CLARK, *President.*

Atlanta, Ga., May 20, 1921. S.

[No index to 68th Congress hearing. See Contents.]

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